

Using the

**KODAK PROFESSIONAL Device Calibration
Software with the**

**KODAK PROFESSIONAL LED II
Printers 20P/20R**

Part No. 6B6640

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Contents

1	Calibrating the Printer	1-1
	Starting the Device Calibration Software	1-2
	Starting the Calibration Application and Exposing a Test Target	1-3
	Obtaining Densities	1-6
	Obtaining Densities from a File	1-6
	Using the Densitometer to Read Densities	1-7
	Obtaining Densities from the Centralized Densitometer (NT Only)	1-8
	Completing the Calibration	1-10
2	Troubleshooting	2-1
	Calibration Graph	2-1
	Calibration Errors	2-2
	Numeric Calibration Error Codes	2-2
	Non-Numeric Calibration Error Messages	2-11
	Densitometer Errors	2-12
3	Using Additional Calibration Features	3-1
	Installing the Calibration Software	3-1
	System Requirements	3-1
	Installation Procedure	3-2
	About the <i>Kodak Professional</i> Device Calibration Software	3-5
	Application Window Definitions	3-5
	Starting the Device Calibration Software	3-7
	Editing the Log Settings	3-7
	Adding, Updating, and Deleting Devices	3-9
	Adding a Device	3-9
	Updating a Device	3-10
	Deleting a Device	3-12

Advanced Features of the LED II Calibration Software	3-13
Viewing Graphs	3-13
Applying a Master Balance (NT Systems Only)	3-18
Sending LUTs	3-20
Sending Targets	3-22
Editing the Device Configuration	3-25
Creating a Density File for Use with Calibration	3-36
File Formats	3-36
Installing the Densitometer	3-37
4 Installing and Using the Centralized Densitometer Application	4-1
Installing the Centralized Densitometer Application	4-1
System Requirements	4-1
Installation Procedure	4-2
Using the Centralized Densitometer Application	4-5
Adding a Printer	4-6
Deleting a Printer	4-7
Changing Printer Information	4-9
Changing the Densitometer Port	4-10
Measuring Densities During a Calibration Cycle	4-12
Viewing Calibration Graphs	4-13

1 *Calibrating the Printer*

This section includes instructions for calibrating the *Kodak Professional* LED Printers 20P/20R, Generations I and II.

Kodak provides calibration applications for Windows NT and Macintosh systems.

See [“Installing the Calibration Software” on page 3-1](#) for installation instructions. See [Section 3, Using Additional Calibration Features](#), for details about the windows and dialog boxes for the application software and for additional procedures not performed with each calibration.

Calibration is the process for creating and maintaining a Look-Up Table (LUT) that produces the correct color balance for *all images printed on the Printer*. There is sufficient variation among printers that each printer must be calibrated separately.

Before calibrating, make sure that:

- the paper path is threaded
- the printer status is “Online and Ready”
- no other printer applications are active
- the calibration application is running
- within the *Kodak Professional* Device Calibration software:
 - at least one device is defined (see [“Adding, Updating, and Deleting Devices” on page 3-9](#))
 - any needed changes to the configuration file are in place (see [“Editing the Device Configuration” on page 3-25](#))
- the densitometer is connected and calibrated
- the paper processor is in control

You need to calibrate the printer when you start the system up each day. You also need to calibrate the printer when

- you change paper
- print quality is questionable
- the temperature at the site changes more than 5° F (2.8° C)
- if running more than one shift, at the beginning of each shift

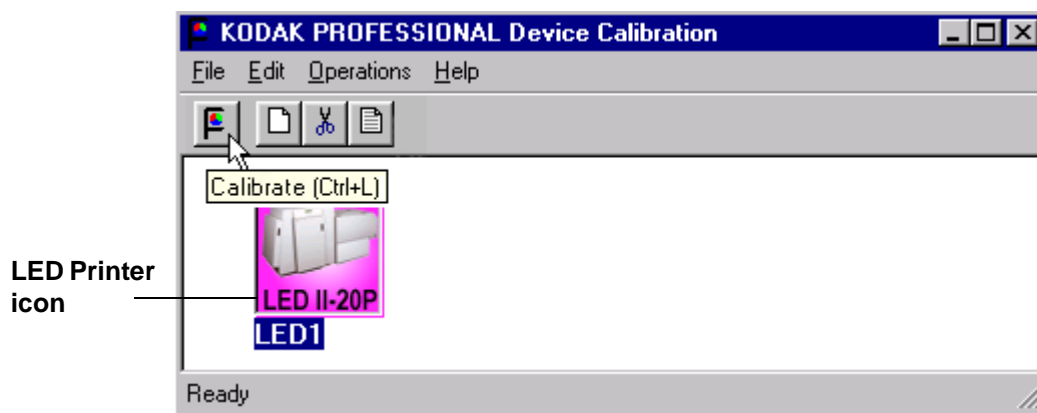
NOTE: Most windows displayed in this section are from the Windows NT version of the software. The windows for the Macintosh version of the software are similar.

For information about editing the calibration settings (for example, you may want to display a calibration graph only if calibration is out of tolerance), see [“Editing the Device Configuration”](#) on page 3-25.

Starting the Device Calibration Software

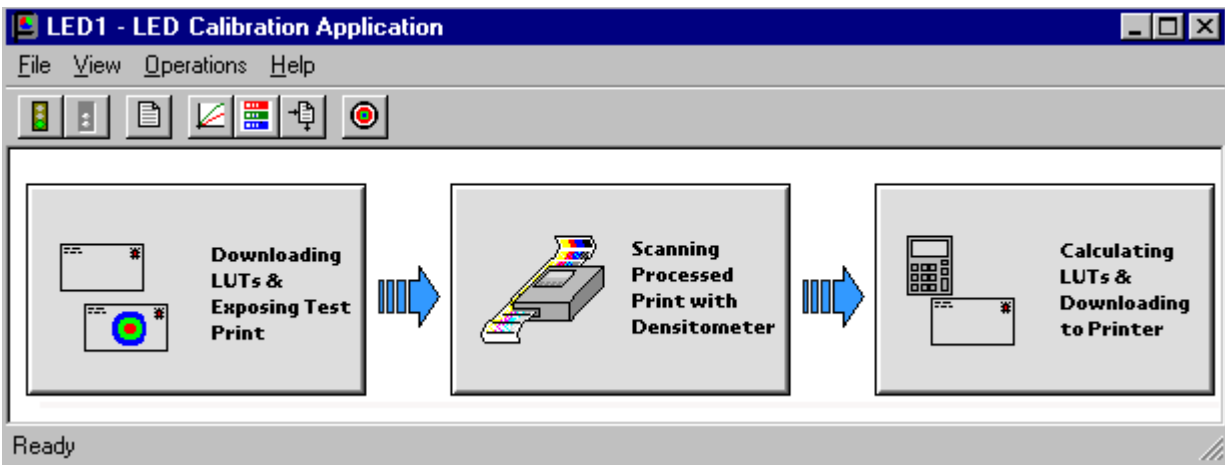
1. Open the KODAK PROFESSIONAL Device Calibration application.

The display shows the KODAK PROFESSIONAL Device Calibration window. If the device you need to calibrate does not appear on the window, you need to add a calibration device. See [“Adding, Updating, and Deleting Devices”](#) on page 3-9.



2. Select the icon for the LED Printer.
3. Click the **Calibrate** icon.

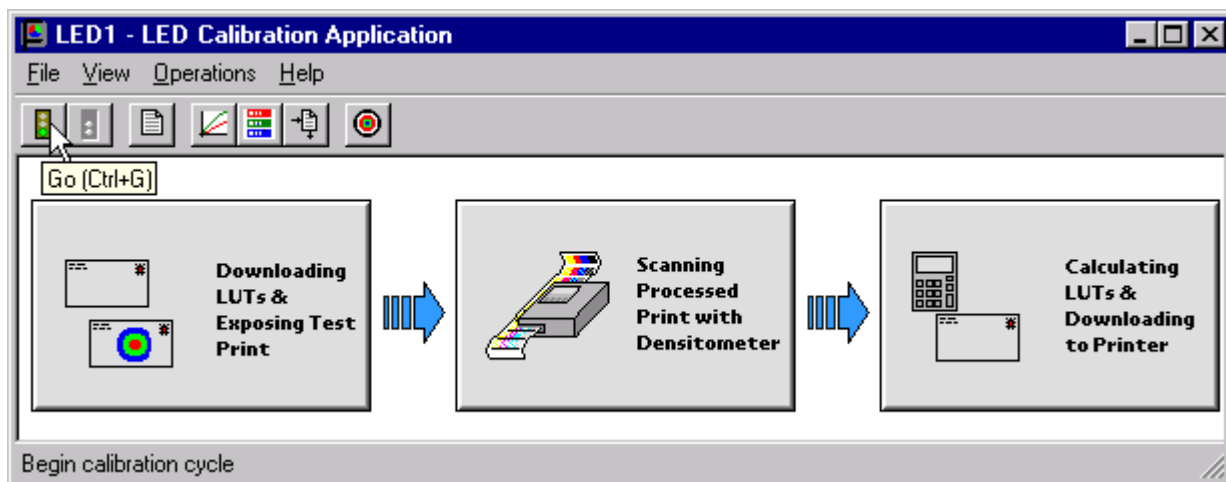
The display shows the LED Calibration Application window.



Starting the Calibration Application and Exposing a Test Target

IMPORTANT: The settings in the configuration file for the selected device determine some of the actions and messages in this procedure. The configuration file is specific to your lab and its operations. For more information about the configuration file, see ["Editing the Device Configuration"](#) on page 3-25.

1. Click **Go** to start the calibration cycle.

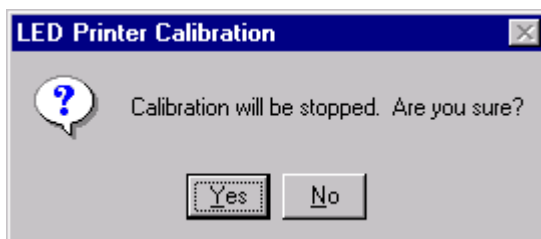


Downloading LUTs and Sending Test Print highlights.

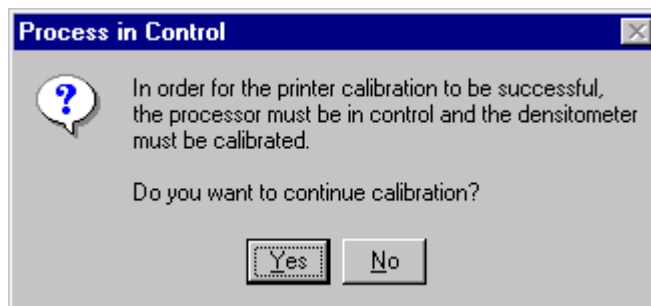
NOTE: Once the application has started, the red stoplight is active and you can click the icon to stop the calibration procedure.



If you click the red stoplight icon, the display shows the following dialog box.



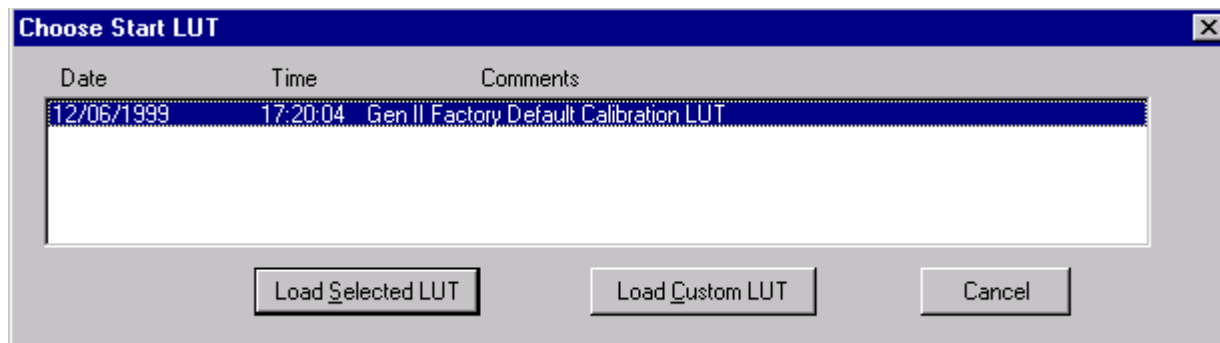
Otherwise, if the configuration file specifies to **Ask if processor is in control**, the display shows the Process In Control dialog box.



The processor is critical to printer calibration. You can calibrate the printer only if the processor is in control.

2. Click **Yes**.

The display shows the Choose Start LUT dialog box.



NOTE: The highlighted LUT in the dialog box above is the most recent calibration LUT.

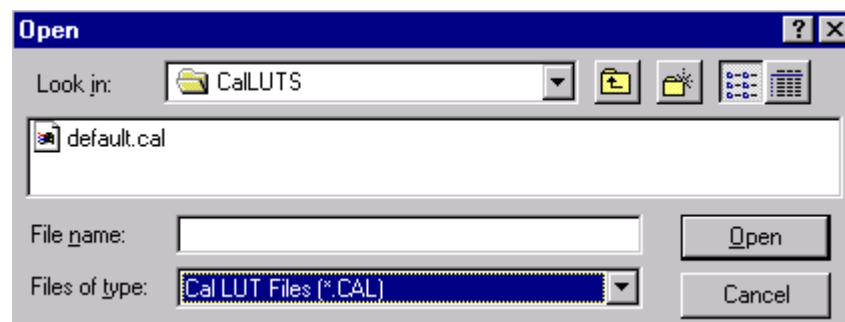
3. Click either **Load Selected LUT** or **Load Custom LUT** (or **Cancel** to cancel the calibration process).

If you click **Load Selected LUT**, the system automatically downloads the highlighted LUT to the printer to create a test print. When the test print has been sent, the **Scanning Processed Print with Densitometer** status icon on the LED Printer Calibration window highlights.

Continue with [“Obtaining Densities” on page 1-6](#).

4. If you selected **Load Custom LUT** in step 3:

From the **Open** dialog box, select or type the name of the LUT file you want and click **Open**.



The system automatically downloads the LUT file to the printer.

When the test print has been sent to the printer, the **Scanning Processed Print with Densitometer** status icon on the KODAK LED Printer Calibration window highlights.

Obtaining Densities

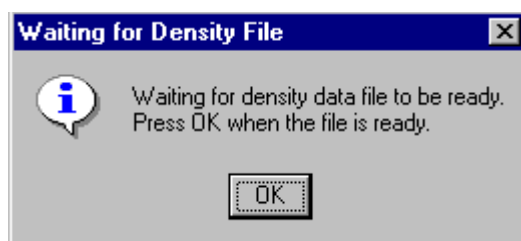
There are three methods for obtaining densities:

- from a file
- from a densitometer
- from a centralized densitometer (NT only and if the Centralized Densitometer application is installed on your network)

The contents of the calibration configuration file determine which method you use (see [“Editing the Device Configuration” on page 3-25](#)).

Obtaining Densities from a File

If the configuration settings include obtaining the density data from a file, the display shows the Waiting for Density File dialog box.



If the configuration settings *do not include obtaining the density data from a file*, go to either:

- [“Using the Densitometer to Read Densities” on page 1-7](#)
- [“Obtaining Densities from the Centralized Densitometer \(NT Only\)” on page 1-8](#)

NOTE: To create a density file, see [“Creating a Density File for Use with Calibration” on page 3-36](#).

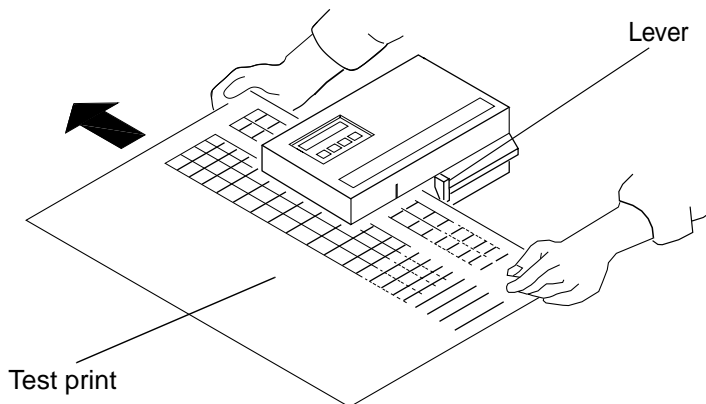
1. Click **OK** to continue with the calibration process.
2. Go to [“Completing the Calibration” on page 1-10](#).

Using the Densitometer to Read Densities

NOTE: For LED Gen I devices, you read only one neutral strip.

Do the following to scan the neutral (gray) patches on the processed test print into the densitometer (refer to your densitometer manual for detailed instructions on using the densitometer):

1. Slide the lever on the densitometer to position 15. Align the edge of the test print with the lever on the densitometer. Gently feed the test print through the densitometer to scan the patches labeled “even”.
2. Slide the lever on the densitometer to position 20. Align the edge of the test print with the lever on the densitometer. Gently feed the test print through the densitometer to scan the patches labeled “odd”.
3. Slide the lever on the densitometer to position 30. Align the edge of the test print with the lever on the densitometer. Gently feed the test print through the densitometer to scan the patches labeled “both”.



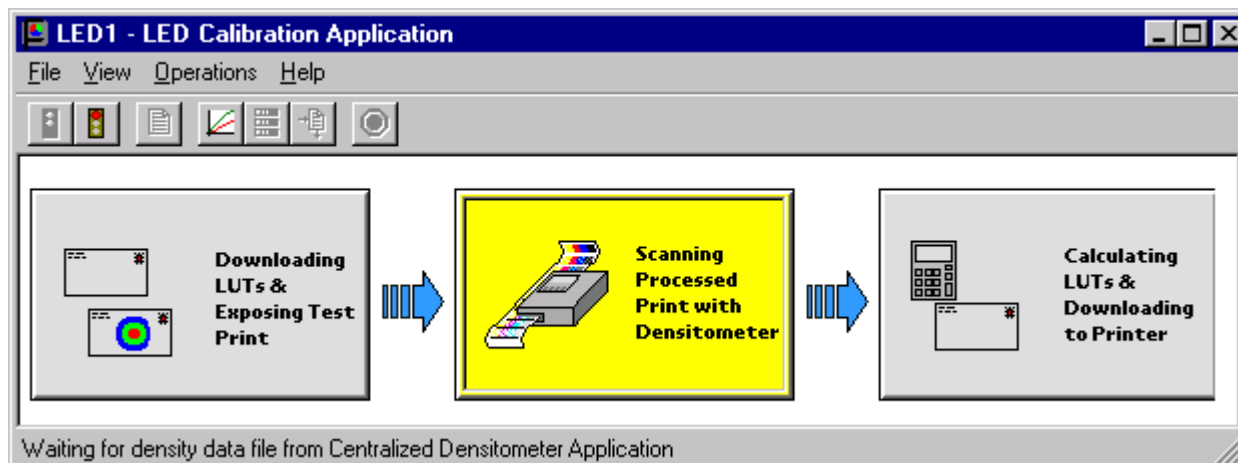
If the test print is read successfully, several messages will appear in the status bar; the final message indicates that the densitometer values have been successfully received. Go to [“Completing the Calibration” on page 1-10](#).

If the test print is not read successfully, refer to [Section 2, Troubleshooting](#).

Obtaining Densities from the Centralized Densitometer (NT Only)

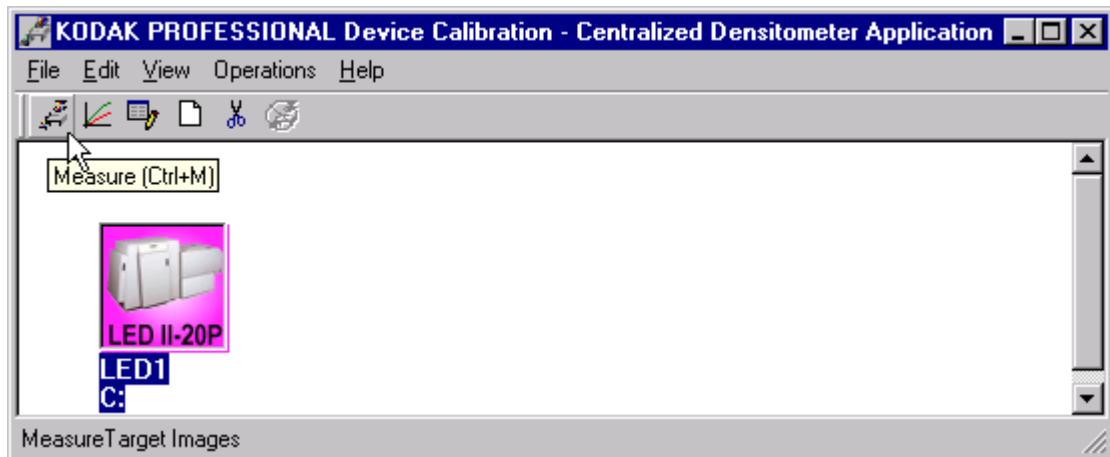
NOTE: For more information about installing and using the Centralized Densitometer Application, see [Section 4, Installing and Using the Centralized Densitometer Application](#).

If the configuration settings include obtaining the density data from the centralized densitometer application, the status bar shows a message.



1. Open the Centralized Densitometer Application.

The display shows the window for the Centralized Densitometer Application.



2. Highlight the device.
3. Click **Measure** (or select *Operations->Measure*) to measure the target images.
4. At the densitometer, measure the densities (see [“Using the Densitometer to Read Densities”](#) on page 1-7).

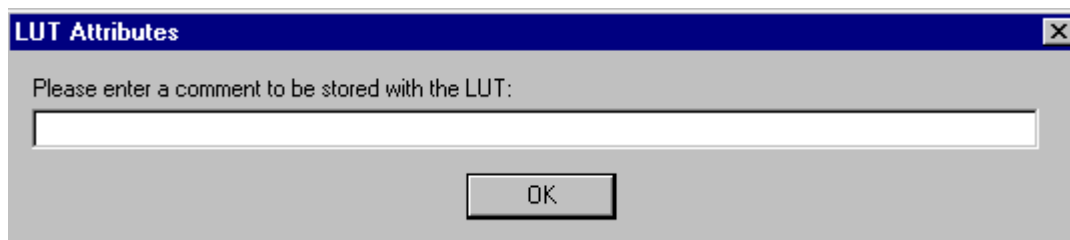
When the densities are measured, the status bar on the Centralized Densitometer Application window shows “Ready.”

The density measurements are automatically sent to the LED printer’s host computer.

Continue with [“Completing the Calibration.”](#)

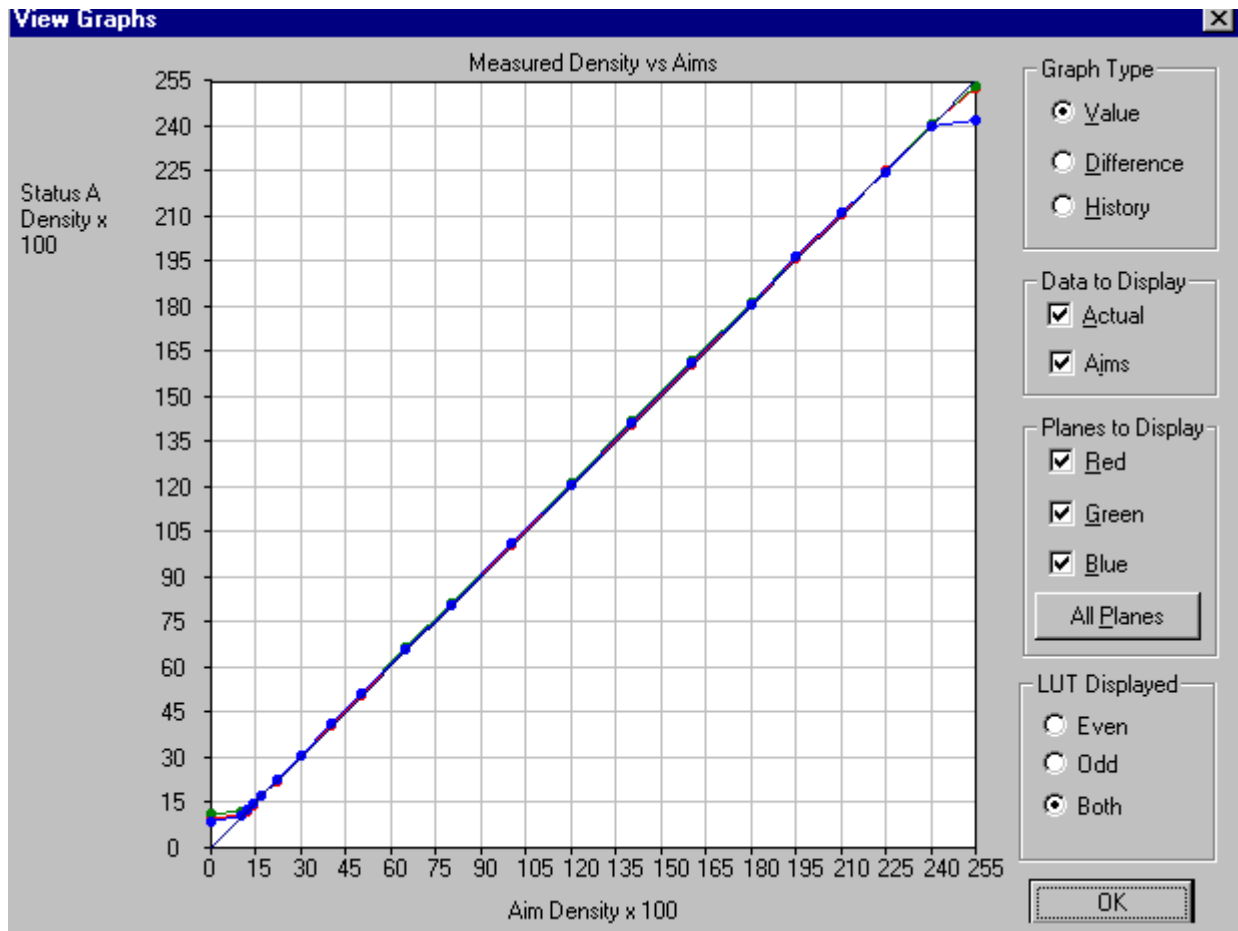
Completing the Calibration

1. **If calibration is in tolerance**, the display shows the LUT Attributes dialog box.



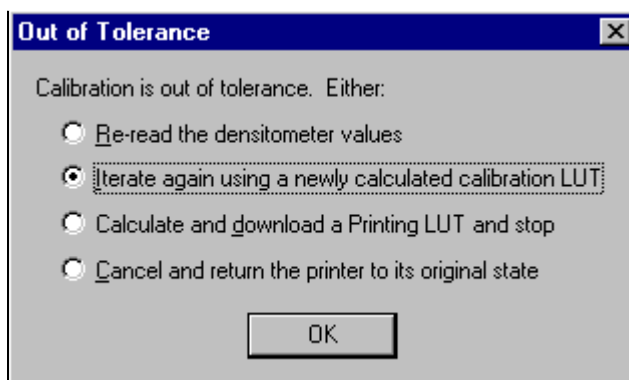
- a. Type a name or comment in the dialog box. The comment you enter will appear on the Send LUT to Printer dialog box to identify the LUT file with a name that is meaningful to you (up to 75 characters).
 - b. Click **OK**.
The new printing LUT is calculated and downloaded. The status bar shows "Calibration Complete."
2. **If calibration is out of tolerance**, it may be necessary to run four or more iterations of the calibration cycle to achieve a successful calibration.

If the print densities are out of tolerance, the display shows a graph that allows you to select the type of data and planes that you want to see displayed.



a. Click **OK**.

If specified in the configuration file, the display shows a list of options.



Re-read the densitometer values is most useful when the graphs show an unusual plot. Rereading the test print lets you validate the graph, then returns you to the Out of Tolerance dialog box.

Iterate again using a newly calculated calibration LUT allows you to keep printing test prints with the newly created LUT without having to save the LUT table.

Calculate and download a printing LUT and stop: When you select this option, the LUT is calculated and the file is saved with the creation date and time as its name.

Cancel and return the printer to its original state saves nothing. Any corrupted data created after you saved the last time is thrown away.

- b. Select one of the four options to try to complete the calibration successfully.

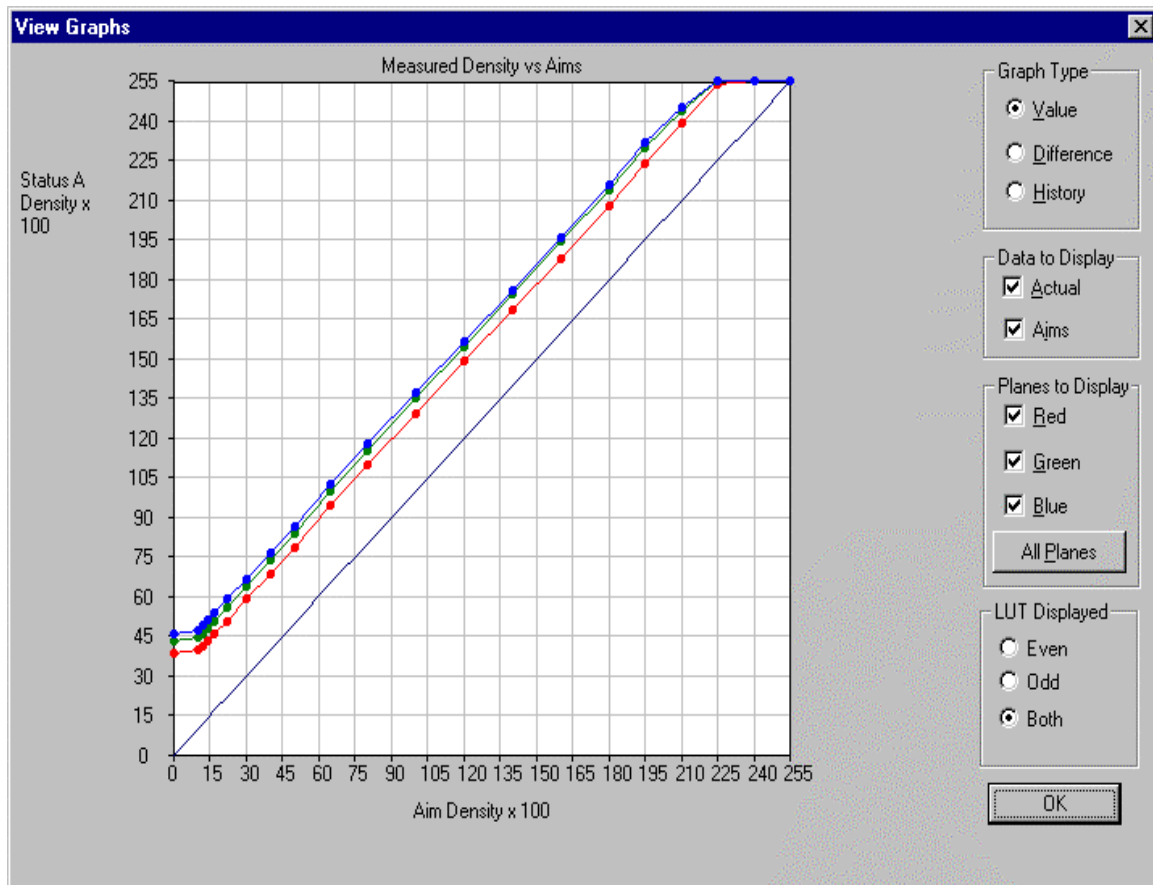
2 Troubleshooting

This section describes the problems that you may occasionally have when using:

- the KODAK Device Calibration Software and the Calibration Software for the KODAK PROFESSIONAL LED II Printer
- the X-RITE DTP36 Densitometer

Calibration Graph

The graph below is an indication that the calibration performed was out of tolerance.



This may be result from invalid densitometer readings. It is necessary to perform another calibration cycle if you see a graph that looks like the one above.

Calibration Errors

Numeric Calibration Error Codes

Code	Status Message	Possible Cause/Subsystem	Possible Solution
1	The following file is locked: <i>_filename_</i> .	The system is trying to access a file that is currently in use.	Close any other applications that may be accessing the file.
2	The following file is protected: <i>_filename_</i> .	The system is trying to access a protected file.	Change the protections on the file to grant access to the user.
3	The following file was not found: <i>_filename_</i> .	The system was trying to access a file that it could not find.	Verify that the filename on one of the configuration dialog windows is correct.
4	Error: <i>_oserror_</i> occurred during operation: <i>_operation_</i> on file: <i>_filename_</i> .	An operating system error occurred.	<ul style="list-style-type: none"> • Rerun the application. • Reboot the operating system
5	The following file is in an incorrect format: <i>_filename_</i> .	The file does not conform to the application specification.	Verify the file format.
6	The following file already exists: <i>_filename_</i> .	The system is trying to save to a file that already exists.	<ul style="list-style-type: none"> • Delete the existing file. • Change the filename.
7	There is not enough space to create: <i>_filename_</i> .	The system is trying to save a file but there is not enough disk space.	Remove any unnecessary files to increase free disk space.
8	There are too many files to open <i>_filename_</i> .	Too many files are open.	Close some files and or applications.
9	You do not have permission to open file <i>_filename_</i> .	The file permission is invalid.	Rerun the application.
10	Error copying print LUT to DP2 folder (can't open <i>_filename_</i>).	The folder doesn't exist or is read-only.	Modify the protection on the folder.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
11	Error creating DP2 LUT folder	A folder of the same name may exist.	Change the selected folder name.
101	No response from device: <i>_devicename_</i> .	The device is not responding to the system.	Verify that the device is connected and on-line.
102	Device not found: <i>_devicename_</i> .	The system was trying to access a device that it could not find.	Verify that the device name on one of the configuration dialog windows is correct.
103	The following device is indicating it is not ready: <i>_devicename_</i> .	The device is not ready.	Wait several minutes and try the activity again.
104	The following device is busy: <i>_devicename_</i> .	The device is busy.	Wait several minutes and try the activity again.
105	The following device is not a TTY port: <i>_devicename_</i> .	The port name in the configuration file does not refer to a valid serial port.	Change the port name in the configuration file to a valid serial port.
106	The following device is closed: <i>_devicename_</i> .	The serial port closed during system reading.	<ul style="list-style-type: none"> • Verify that no other application is accessing the port. • Restart the application.
107	No data on device: <i>_devicename_</i> .	No data is available for the system to read on the serial port.	<ul style="list-style-type: none"> • Verify that the densitometer is connected correctly. • Restart the application.
108	Error: <i>_oserror_</i> occurred during operation: <i>_operation_</i> on device: <i>_devicename_</i> .	An operating system error occurred.	<ul style="list-style-type: none"> • Rerun the application. • Reboot the operating system • If problem continues, call for service.
109	Invalid Device ID: <i>_devicename_</i> .	A new device was created with an incorrect device ID.	Edit the device ID to reflect the correct device ID.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
110	Unable to perform operation: _operation_ Status Message: _statmsg_ Error Message: _errmsg_.	An unknown device error occurred.	Use the information in the status message and error message to resolve the device error.
111	There is insufficient memory for the requested operation on device: _devicename_.	The application does not have enough memory to complete the operation.	Close the other applications and unnecessary windows.
112	A communications time-out occurred during operation on device: _devicename_.	The connection between the printer and host computer was lost.	Check that all cables are properly connected.
113	A device driver for the following device could not be found: _devicename_.	The application could not find the necessary device software to communicate with the printer.	Make sure that the Calibration Application and ASPI SCSI device driver are installed correctly.
114	An error occurred during communications to the following device: _devicename_.	<ul style="list-style-type: none"> • The cable between the printer and the host computer is worn. • One or more of the connections between the printer and the host computer has malfunctioned. 	<ul style="list-style-type: none"> • Check that all cables are properly connected. • Check the cables and connections between the printer and the host computer for wear and if necessary, replace them.
115	An operation error occurred during communications to the following device: _devicename_.	<ul style="list-style-type: none"> • The cable between the printer and the host computer is worn. • One or more of the connections between the printer and the host computer has malfunctioned. 	<ul style="list-style-type: none"> • Check that all cables are properly connected. • Check the cables and connections between the printer and the host computer for wear and if necessary, replace them.
116	A software warning has been issued by the following device: _devicename_ Error Message: _errmsg_.	A software error has occurred on the printer.	Resolve printer error condition.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
117	A software error has been detected by the following device: <i>_devicename_</i> Error Message: <i>_errmsg_</i>	An error has occurred on the printer.	Resolve printer error condition.
118	A SCSI ID for the following device was not found: <i>_devicename_</i> .	SCSI driver not found.	Reinstall the SCSI driver on host computer.
119	The wrong SCSI ID was specified for the following device: <i>_devicename_</i> .	SCSI ID is incorrect.	Set the Target SCSI ID to the printer SCSI ID.
120	This device has been setup for the wrong model of printer: <i>_devicename_</i> .	The chosen device has not been found.	Verify chosen device matches the printer model.
121	Unable to read STATUS from device: <i>_devicename_</i> .	Unable to see the printer.	Check SCSI cable connections.
122	The selected LUT contains data that exceeds the limits of this printer.	Trying to send a 12-bit LUT to a 10-bit printer.	Select a 10-bit LUT file.
201	An error occurred while trying to allocate memory.	The system is trying to allocate memory; however, no memory is available.	Close any unnecessary applications.
202	The following parameter is invalid: <i>_parametername_</i> : <i>_parametervalue_</i> .	An internal error occurred with the software.	<ul style="list-style-type: none"> • Restart the application. • If problem continues, call for service.
203	The function is not supported by the class.	An internal error occurred with the software.	<ul style="list-style-type: none"> • Restart the application. • If problem continues, call for service.
204	This function has not been implemented.	An internal error occurred with the software.	<ul style="list-style-type: none"> • Restart the application. • If problem continues, call for service.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
205	Must enter the following field: <i>_field_</i> .	The operator left a configuration field blank.	Enter information in the blank configuration field.
301	The following key was not found: <i>_key_</i> .	<ul style="list-style-type: none"> • An internal error occurred with the software. • One of the files was edited manually and a key was changed. 	<ul style="list-style-type: none"> • Restart the application. • Restore the key to its previous value. • If problem continues, call for service.
302	The following grouper was not found: <i>_grouper_</i> .	<ul style="list-style-type: none"> • An internal error occurred with the software. • One of the files was edited manually and a grouper was changed. 	<ul style="list-style-type: none"> • Restart the application. • Restore the grouper to its previous value. • If problem continues, call for service.
303	The call depends on a current grouper, but the current grouper has not been set.	An internal error occurred with the software.	<ul style="list-style-type: none"> • Restart the application. • If problem continues, call for service.
501	An error occurred while applying the data.		
601	A bad count was entered. The expected count was: <i>_count_</i> .	<ul style="list-style-type: none"> • A file was edited manually and an incorrect number of rows was entered. • An internal software error occurred. 	<ul style="list-style-type: none"> • Manually enter the correct number of rows in the file. • If problem continues, call for service.
602	An error occurred during the calculation process.	An internal error occurred with the software.	<ul style="list-style-type: none"> • Restart the application. • If problem continues, call for service.
701	Patch <i>_patch_</i> , column <i>_column_</i> , value <i>_value_</i> is beyond tolerance <i>_tolerance_</i> for aim <i>_aim_</i> .	A density patch was out of tolerance.	Perform another calibration cycle.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
702	Patch <i>_patch_</i> has a spread of <i>_spread_</i> which is out of range <i>_range_</i> .	The spread between colors for a given density patch is out of tolerance.	Perform another calibration cycle.
703	CalToleranceFile can only be initialized once.	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
704	CalToleranceFile::initialize must be called first.	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
801	Could not find row: <i>_row_</i> .	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
802	Could not find column: <i>_column_</i> .	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
803	Could not find element - column: <i>_column_</i> , row: <i>_row_</i> .	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
804	Row value was not set before using.	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
805	Column value was not set before using.	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
806	Error deleting row: <i>_row_</i> .	An internal error occurred with the software.	<ul style="list-style-type: none"> Restart the application. If problem continues, call for service.
807	Element at row: <i>_row_</i> ; column: <i>_col_</i> value: <i>_val_</i> failed audit.	An input file had incorrectly formatted data in it at the location indicated.	<ul style="list-style-type: none"> Verify that you are using the correct file. Edit the file and correct the format.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
910	Configuration file field: <i>filename</i> is invalid. Calibration will be cancelled.	The user entered an incorrect value in a configuration file.	<ul style="list-style-type: none"> • Enter the correct value. • Reinstall the application. • If problem continues, call for service.
911	Error_ <i>errcode</i> _occurred. Processing stopped.	An internal error occurred with the software.	Restart the application.
919	Error occurred preparing to handle exit from Kodak Device Calibration. Will not perform cleanup at exit.	An internal error occurred with the software.	Restart the application.
921	Unable to return the printer to its original state. Fix printer problem and re-calibrate.	The application was trying to cancel but received an error when sending the original LUT back to the printer.	Printer is in an unknown state. Correct any printer problems and restart the application.
922	There is already a printer open. Please close the open printer first.	User tried to open a printer when the printer was already open.	Close the open printer.
923	An error occurred during the loading of a printer. Please check to make sure the file chosen was of the correct type and/or format.	An error occurred during the loading of a printer.	Check that the file chosen was the correct format or type.
924	No printer loaded.	The operator has not yet opened a printer.	Open a printer.
941	The height and width values do not agree with the size of the target file.	The specified size does not match the file size.	Enter the correct file size.
942	Unable to configure densitometer. Densitometer configuration file may be corrupt or lost.	The file CalDevDensGen2.cfg is corrupt or lost.	Restart the application. If problem continues, call for service.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
1003	Unable to load default configuration file: <i>_filename_</i> .	The default configuration file was deleted or renamed or moved.	Restore the file manually or reinstall the software.
1004	Unable to set values in new configuration file.	An internal error occurred with the software.	Restart the application.
1005	Unable to save configuration file: <i>_filename_</i> .	The system is trying to save a file but there is not enough disk space.	Remove any unnecessary files to increase free disk space.
1006	Configuration file field: <i>_field_</i> is invalid.	The user entered an incorrect value in a configuration file.	<ul style="list-style-type: none"> • Enter the correct value. • Reinstall the application.
1007	Unable to remove directory: <i>_directory_</i> .	The user does not have the authority to update the directory.	Verify that the user has update authority on the directory.
1101	Density DMIN/DMAX points are invalid.	Density points are invalid.	Reread density values on densitometer or make a new calibration print.
1102	Density data is not monotonic increasing.	Density data is invalid.	Reread density values on densitometer or make a new calibration print.
1103	Exceeded maximum number of allowable data errors.	Density data is invalid.	Reread density values on densitometer or make a new calibration print.
1104	Asymmetric Density Groupings are invalid.	Density data is invalid.	Reread density values on densitometer or make a new calibration print.
1201	Unknown response from densitometer.	During initialization, the application received an unknown response from the densitometer.	Verify that the baud rate of the densitometer matches that of the applications configuration.

Code	Status Message	Possible Cause/Subsystem	Possible Solution
1202	Error: <i>_error_</i> from densitometer.	An unexpected error was returned from the densitometer.	Calibrate the densitometer. If the problem continues, check the manual for the densitometer.
1203	Error: Number of patches seen by densitometer is incorrect.	Unable densities on densitometer.	Try adjusting frame counts or reread the density patches on the densitometer.
1300	Values have not been loaded	The matrix file is missing.	Create a new device.
1301	Data or Matrix files have not yet been loaded	The matrix file is missing.	Create a new device.
1302	Data cannot be saved, must first apply the matrix	The matrix file is missing.	Create a new device.

Non-Numeric Calibration Error Messages

<i>Error Message</i>	<i>Possible Cause/Subsystem</i>	<i>Possible Solution</i>
An underrun error occurred during communications to the following device.	<ul style="list-style-type: none"> • The cable between the printer and the host computer is worn. • One or more of the connections between the printer and the host computer has malfunctioned. 	<ul style="list-style-type: none"> • Check that all cables are properly connected. • Check the cables and connections between the printer and the host computer for wear and, if necessary, replace them.
An UNKNOWN error occurred during communications to the following device.	An unknown error occurred in the application.	<ul style="list-style-type: none"> • Restart the calibration application. • If the problem continues, make sure that the Calibration Application and ASPI SCSI device driver are installed correctly.
Device not found.	The host computer attempted to contact the printer at the specified SCSI ID but did not get a response.	<ul style="list-style-type: none"> • Make sure that the printer is turned on and is on-line. • Make sure that the Calibration Application and ASPI SCSI device driver are installed correctly.
Invalid Device ID.	The host computer attempted to contact the printer at the specified SCSI ID but did not get a response.	Make sure that the printer is turned on and is on-line.
The following device is busy.	The printer at the specified SCSI ID is busy.	Check that all cables are properly connected.
The following device is closed.	The connection between the printer and host computer was lost.	Check that all cables are properly connected.

Densitometer Errors

Code	Message	Explanation
<01>	BAD_COMMAND	The densitometer does not recognize a command.
<02>	PRM_RANGE_ERROR	One or more data or address parameters is out of range. See the command guide for parameter limits.
<03>	DISPLAY_OVERFLOW_ERROR	An attempt was made to read or write beyond the end of the display. Valid addresses for the display range from 0x00 to 0x20 (0 to 31 decimal).
<04>	MEMORY_OVERFLOW_ERROR	An attempt was made to read or write beyond the end of the external RAM within the densitometer. Valid addresses for the external RAM range from 0x0000 to 0x7fff (0 to 32767 decimal).
<05>	INVALID_BAUD_RATE	The parameter included with the BR command was invalid. Valid parameters are 06 (1200), 0C (2400), 18 (4800), 30 (9600), and 60 (19200).
<06>	INVALID_PHOTO_STRIP	The specified photographic control strip does not exist.
<07>	TIMEOUT	The time interval between characters has exceeded 5 seconds.
<08>	PRM_SYNTAX_ERROR.	An invalid character was found in the command string.
<09>	INVALID_PASS	The requested pass does not exist for the currently stored strip (e.g., specifying pass 5 for a 4-pass strip).
<0a>	INVALID_STEP	The requested step does not exist for a given pass in the currently stored strip (e.g., specifying step 25 or step 0 on a 21-step pass).
<0b>	NO_DATA_AVAILABLE	Data was requested but no data is stored in memory.
<0c>	MISSING_PARAMETER	One or more required parameters was omitted.
<10>	LAMP_MARGINAL	The lamp output is at approximately 50% of its original brightness. Strip readings can still take place, but to maintain proper accuracy and repeatability, replace the lamp as soon as possible.

Code	Message	Explanation
<11>	LAMP_FAILURE	The lamp is either burned out or its output is at a level too low for acceptable readings. The densitometer will not read strips until the lamp is replaced and the densitometer is re-calibrated.
<12>	STRIP_RESTRAINED	During calibration, the calibration strip was held or restrained as it passed through the unit. Do not hold the strip as it is reading and make sure the read path is clear of any foreign matter.
<13>	BAD_CAL_STRIP	During calibration, the calibration strip was unrecognizable. The strip may have been inserted backwards, upside down, or held so that it slipped on the internal rollers. This also may be an indication that the strip needs to be replaced.
<14>	MOTOR_ERROR	During calibration, a problem was detected with the drive motor. This can occur if the strip is held back while reading.
<20>	INVALID_READING	The strip just read was not recognized by the densitometer.
<21>	WRONG_COLOR	After a strip reading, the step wedge just read was not the color specified for that pass or strip as defined in the densitometer editor menu.
<23>	NEEDS_CALIBRATION	The calibration check that was done immediately after reading a strip indicated that the unit needs calibration. This occurs when the reading taken from the opal glass after the strip exits the unit differs from the reading taken during calibration by more than the internal tolerance (default is 0.1 X, Y, or Z). The tolerance can also be changed by the RCI command CC (Check Cal tolerance).
<26>	NO_VALID_DATA	The measure type is set to CONT and the strip that was read contained nothing but base material. Base material is defined as measuring less than 0.5D in the visual channel. For negative (black) based materials, base material is defined as measuring less than twice the reflectance of a measurement taken near the trailing edge of the strip. The densitometer uses a measurement taken at about 0.25 inches from the trailing edge of the strip to determine if it is positive or negative based. Any measurement greater than 10% reflectance is considered positive based; anything else is considered negative based.

Code	Message	Explanation
<27>	BAD_PATCH	If the Pattern Recognition comparison window is set to 0 or 1, this error may result when a single patch on the strip is bad due to dirt, smears, creases, etc. (See explanation of CW command for more information.)
<30>	BAD_STRING_LENGTH	A strip definition string received as part of the DS (Define Strip) RCI command did not contain the correct number of characters.
<31>	BAD_CHARACTER	A non-printable character was received in one of the name fields (strip name or pass name). Printable characters are in the range 0x20 to 0x7E, inclusive.
<32>	BAD_MEAS_TYPE	The value for the measure type field was greater than 3. Valid values are 0 through 3.
<33>	BAD_COLOR	The value for the color field was greater than 9.
<34>	BAD_STEPS	The value for the number of steps was greater than 72.
<35>	BAD_STOP_LOCATION	The value for the guide setting was less than 4 or greater than 30.
<36>	BAD_OUTPUT_TYPE	The value for the output type was greater than 5.
<37>	MEMORY_ERROR	The definition could not be stored.
<38>	BAD_N_FACTOR	The n-factor (used in Dot calculations) is either less than 0500 (0.500) or greater than 4500 (4.500).
<39>	STRIP_DOESNT_EXIST	The SD command was issued and the requested strip does not exist.
<3A>	BAD_MIN_MAX_VALUE	The value for the min/max field was greater than 4.
<40>	BAD_SERIAL_NUMBER	An attempt was made to redefine one of the stored serial numbers with a number containing one or more invalid digits.

3 *Using Additional Calibration Features*

The topics covered in this section include:

- Installing the Calibration Software
- An overview of the *Kodak Professional* Device Calibration Software
- Advanced Features of the LED II Calibration Software
- Installing the Densitometer

IMPORTANT: For the step-by-step procedure to calibrating the printer, see [Section 1, Calibrating the Printer](#).

Installing the Calibration Software

Installing the software includes installing both the *Kodak Professional* Device Calibration Software (which manages the calibration of multiple Kodak devices) and the Calibration Software for the *Kodak Professional* LED II Printer 20P/20R.

You can install the software either from a supplied CD or by downloading from the Kodak web site.

System Requirements

MACINTOSH Systems

- Power MACINTOSH System 7.5 or above
- Minimum of 35 MB free disk space
- 608 K free disk space for each of as many as six configured devices
- 256 colors at 640 x 480 spatial resolution
- CD ROM Drive

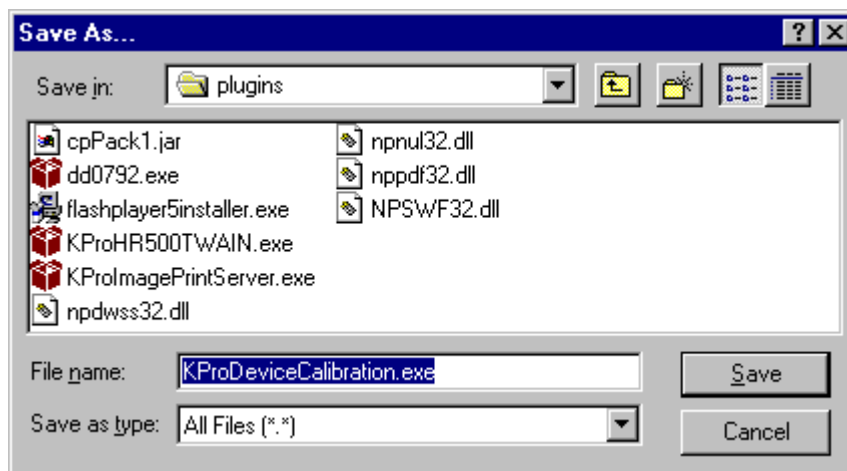
WINDOWS NT Systems

- 100 MHz PENTIUM Processor
- 64 MB Main System Memory
- VGA Monitor (640 x 480 spatial resolution)
- CD ROM Drive

Installation Procedure

1. If you are installing the software from the supplied CD-ROM:
 - a. Place the CD in your CD-ROM drive.
 - b. When the Browser is displayed, select **LED Printer**.
2. If you are downloading the installation files from the Kodak web site, go to <http://www.kodak.com/global/en/service/printers/led2Printer/led2Printer.shtml>.
3. Under the heading Product Support, select **Drivers, Software and Firmware**.
4. Select **Calibration Utilities**.
5. Under the heading **Download File**, select **KODAK PROFESSIONAL Device Calibration**.

The display shows the Save As dialog box.



6. Either accept the default path and file name or select another path and file name and save the file.

NOTE: The installation is similar for NT and Macintosh systems. When the instructions say, for example, click **Next** or **Install**, the first option is for NT systems and the second is for Macintosh systems.

CAUTION: To avoid possible damage, do not connect or disconnect the cable between your host computer and the printer when either device is powered up.

7. Open the installation file (KODAK PROFESSIONAL Device Calibration.exe). The display shows a splash screen for KODAK PROFESSIONAL Device Calibration and a Setup message.
8. After the Welcome screen is displayed, click **Next** or **Continue**.
9. *For Macintosh systems only*, read the readme information, then click **Continue**.
10. Read the license agreement.
 - To accept the terms and continue the installation, click **Yes** or **Agree**.
 - Or, to cancel the installation, click **No** or **Disagree**.
11. *For NT systems only*, read the readme information, then click **Next**.
12. Select the installation type:

For NT systems, select one of the following:

NOTE: The Compact option is not supported.

- **Typical** includes Device Calibration Applications for the *Kodak Professional* LED Printer and for the *Kodak Professional* Digital Mutliprinter, plus the Linearization Calibration Application for the *Kodak Professional* RFS 3570+ (Speed Up) Film Scanner
- **Custom** allows you to choose specific features for the application you choose to install, including the Centralized Densitometer Application; for the LED Printer, you may choose to install either Gen I or Gen II.

*For Macintosh systems, select **Easy Install**.*

13. Click **Next** to install the software on your system.

The display shows a dialog box for you to designate where to install the calibration software.

14. Either accept the default path and folder or select another path and folder.
15. Click **Finish** or **OK**.

NOTE: For NT systems, the dialog box gives you the option of reading the readme file associated with your installed applications.

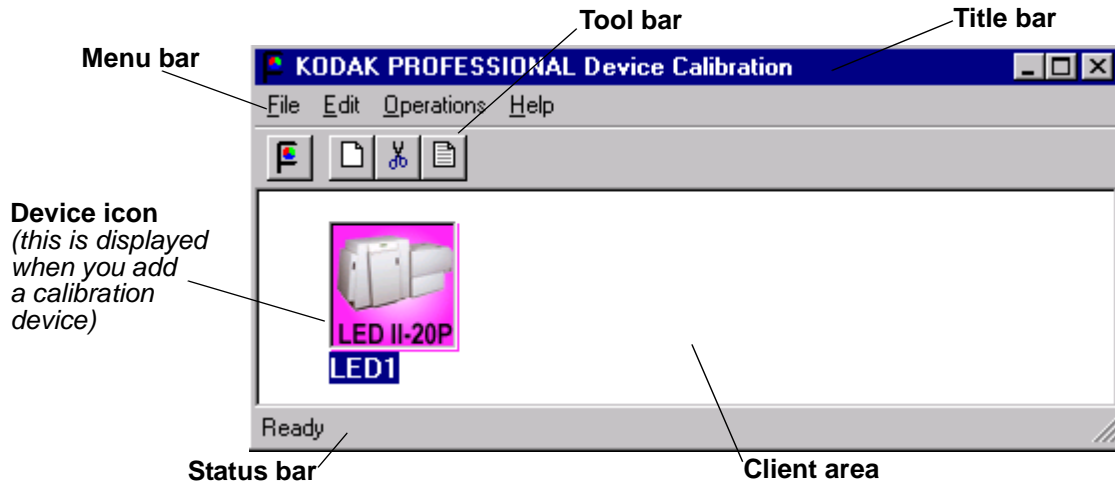
16. If you installed the software from a CD-ROM, remove the CD and store it in a safe place.

About the *Kodak Professional Device Calibration Software*

The *Kodak Professional Device Calibration* software manages and launches customized calibration software applications, including the calibration software for the LED 20P and 20R printers.










Application Window Definitions

The window below and the tables that follow define the application window for the KODAK PROFESSIONAL Device Calibration Software.



Window Area	Description
Title Bar	Contains the application name, "KODAK PROFESSIONAL Device Calibration"
Menu Bar	Contains selectable menu items
Tool Bar	Contains the user selectable menu choices and is activated by a shortcut keystroke or by a mouse pointer and left mouse button
Client Area	Contains the icons that represent devices available for calibration
Device Icon	Represents a device that can be calibrated
Status Bar	Displays messages to the user to indicate actions that are occurring or the status of the occurring action and the currently selected device

The table below defines the functions and their corresponding icons on the main window of the Device Calibration Software.

Menu Access	Function	Icon/Key	Availability	Description
Operations	<u>C</u> alibrate	 NT Systems: Ctrl+L MAC Systems:  +L	When the device is selected	Passes control to calibration software for the device; double-clicking on a device icon performs the same action
File	<u>N</u> ew	 NT Systems: Ctrl+N MAC Systems:  +N	Always	Displays Create a New Device dialog box; adds a device to control area
Edit	<u>C</u> ut	 NT Systems: Ctrl+X MAC Systems:  +X	When a calibration device is selected	Removes object from control area. All history data files (including log data, LUT files etc.) will be deleted for this device. The display shows a confirmation dialog box so you cancel the action.
File	<u>E</u> dit	 NT Systems: Ctrl+E MAC Systems:  +E	Always	If no object is selected, Edit Application Configuration dialog box is displayed. If an object is selected, Update a Device Registry dialog box for that device is displayed.
File	MAC Systems: <u>Q</u> uit NT Systems: <u>E</u> xit	NT Systems: Ctrl+Q MAC Systems:  +Q	Always	Exits application
Help	Product Info	NA	Always	Displays Product Information dialog box

Starting the Device Calibration Software

Load the Calibration Software according to the table below. (If needed, see [“Installing the Calibration Software”](#) on page 3-1.)

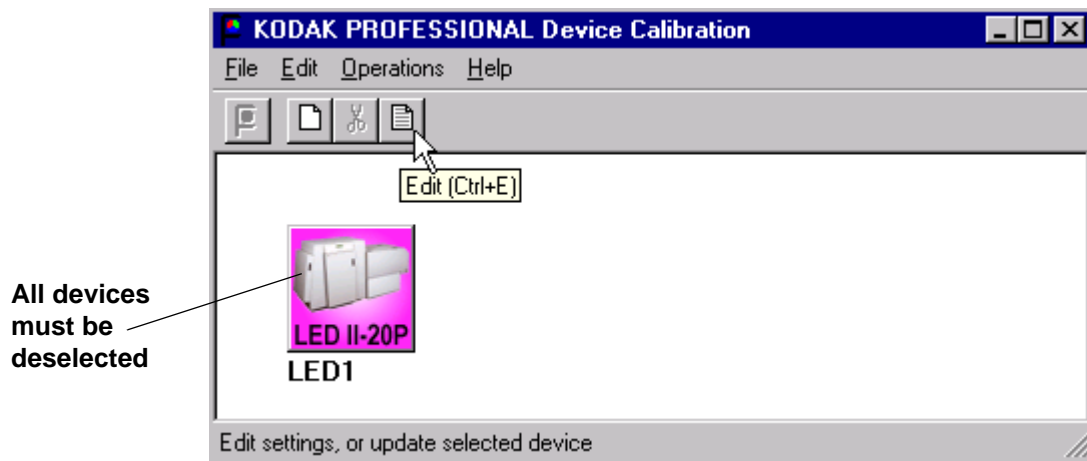
MACINTOSH Systems	NT Systems
<ol style="list-style-type: none"> 1. Open the folder that contains the files for the calibration application. 2. Click the icon for KODAK PROFESSIONAL Device Calibration. 	Select: Eastman Kodak/KPRO Applications/KODAK PROFESSIONAL Device Calibration from the WINDOWS NT Start menu.

Editing the Log Settings

Your Device Calibration application has specific “log settings” for the purpose of keeping a history of the calibration. You may want to change the settings—the type of messages written to the log file, the number of days to keep the log file, and the name of the log file. (See also [“Editing Information on the History Tab”](#) on page 3-30.)

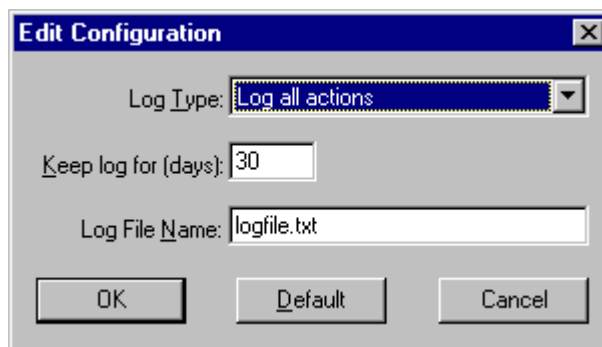
To change the log settings for the Device Calibration:

1. On the Device Calibration window, deselect all devices.



2. Click the **Edit** icon or select *File->Edit*.

The display shows the Edit Configuration dialog box with the default settings:



3. Edit the device settings as needed or click **Default** to refresh the dialog box with the default settings.

The log operations/settings include:

<i>Device Setting</i>	<i>Options</i>
Log Type	<p>None: No logging of events or errors</p> <p>Events: Log events only (status messages that are displayed on the screen)</p> <p>Errors: Log errors only</p> <p>Log all actions: Log all actions</p>
Keep log for (days)	Enter the number of days you want to keep logged information – for up to 99 days
Log File Name	Enter the name that you want to give to the log file

4. Click **OK** to save (or **Cancel** to cancel) the changes.

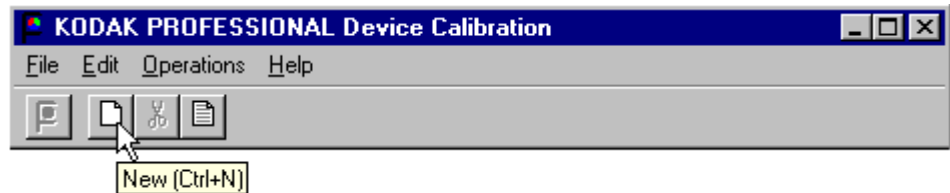
Adding, Updating, and Deleting Devices

You can:

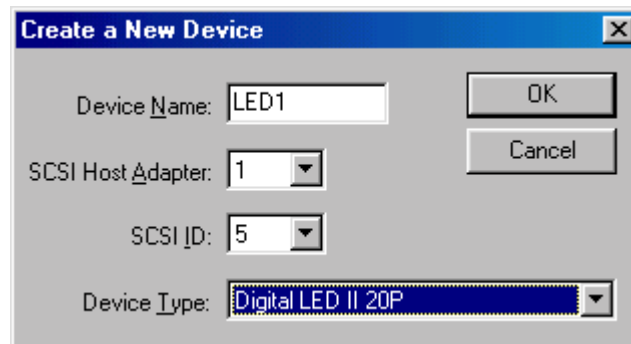
- add new printer calibration devices
- update the name or SCSI ID (Target ID) of an existing device
- delete devices
- update the configuration files for devices

Adding a Device

1. Click the **New** icon or select *File->New* on the Device Calibration window.



The display shows the Create a New Device dialog box.



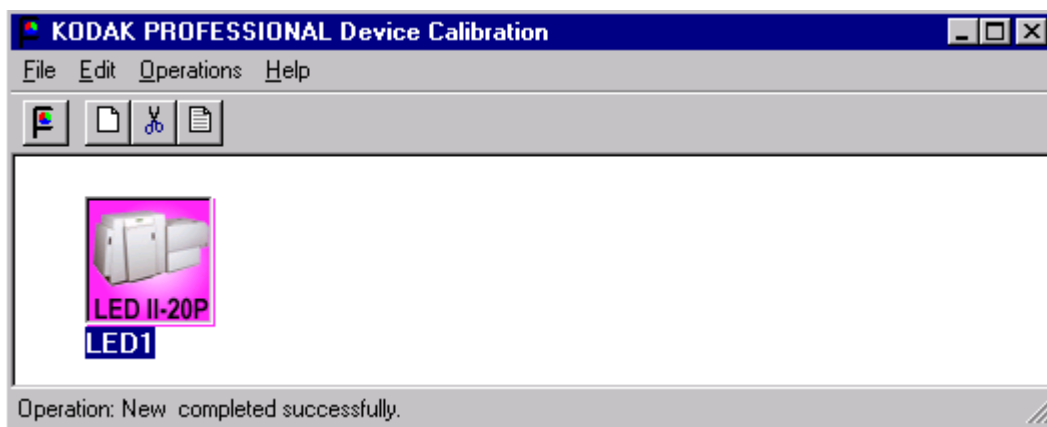
2. Enter the correct device settings. Use a unique identifying word for the device name.

NOTES: The default SCSI ID for the printer is 5. The printer's OCP menu displays the current SCSI ID for the printer.

Make sure the Device Type field matches the type of printer that is being calibrated (for example: Digital LED II 20P).

3. Click **OK** to accept the changes.

A new printer device icon is displayed on the Device Calibration window.

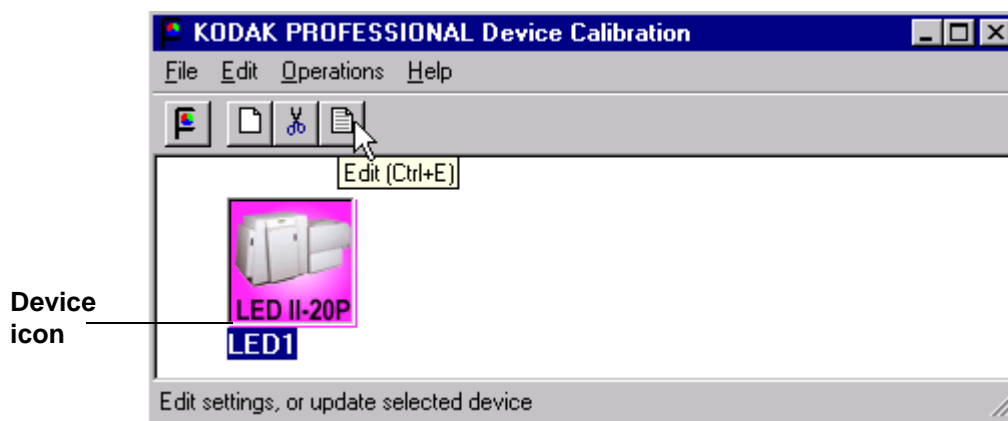


NOTE: If an error message is displayed, refer to [Section 2, Troubleshooting](#).

Updating a Device

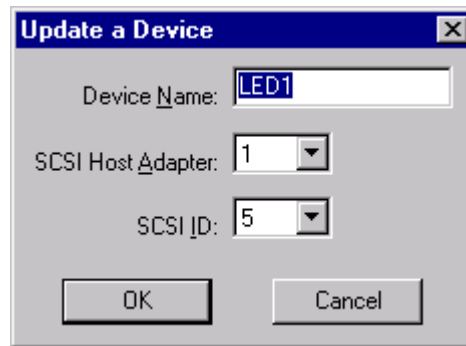
To update the device name or the SCSI information for a device:

1. Select the device by clicking *once* on the device icon on the Device Calibration window.



2. Click the **Edit** icon or select *File->Edit*.

The display shows the Update a Device dialog box.



3. Enter the correct device settings.
The options for the device settings include:

<i>Device Setting</i>	<i>Options</i>
Device name	Enter the name that you want to give to the device. NOTE: The MACINTOSH platform limits the device name to 10 characters.
SCSI Host Adapter	Adapter ID on host computer
SCSI ID	The SCSI ID for the device; the default is 5 for the LED Printer

4. Click **OK** to save (or **Cancel** to cancel) the changes.

Deleting a Device

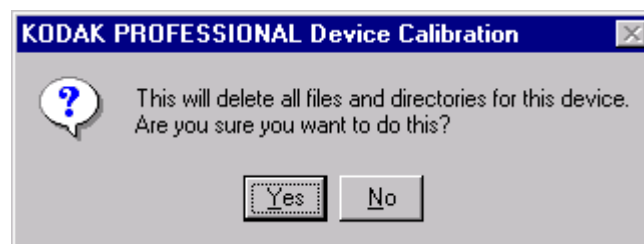
To delete a device and all files associated with the device:

1. Select the device by clicking *once* on the device icon.



2. Click the **Cut** icon or select *Edit->Cut*.

The display shows:



3. Click **Yes** to delete the device and associated files (or click **No** to stop the deletion process).

Advanced Features of the LED II Calibration Software

The Calibration Software for the KODAK PROFESSIONAL LED II Printer 20P/20R provides automated neutral density printer calibration and is designed to be used without assistance from technical experts. The advanced calibration features provided by this product enable you to customize the calibration of the printer. To use the advanced features, you should understand image science technology and the implications of manipulating neutral density calibrations.

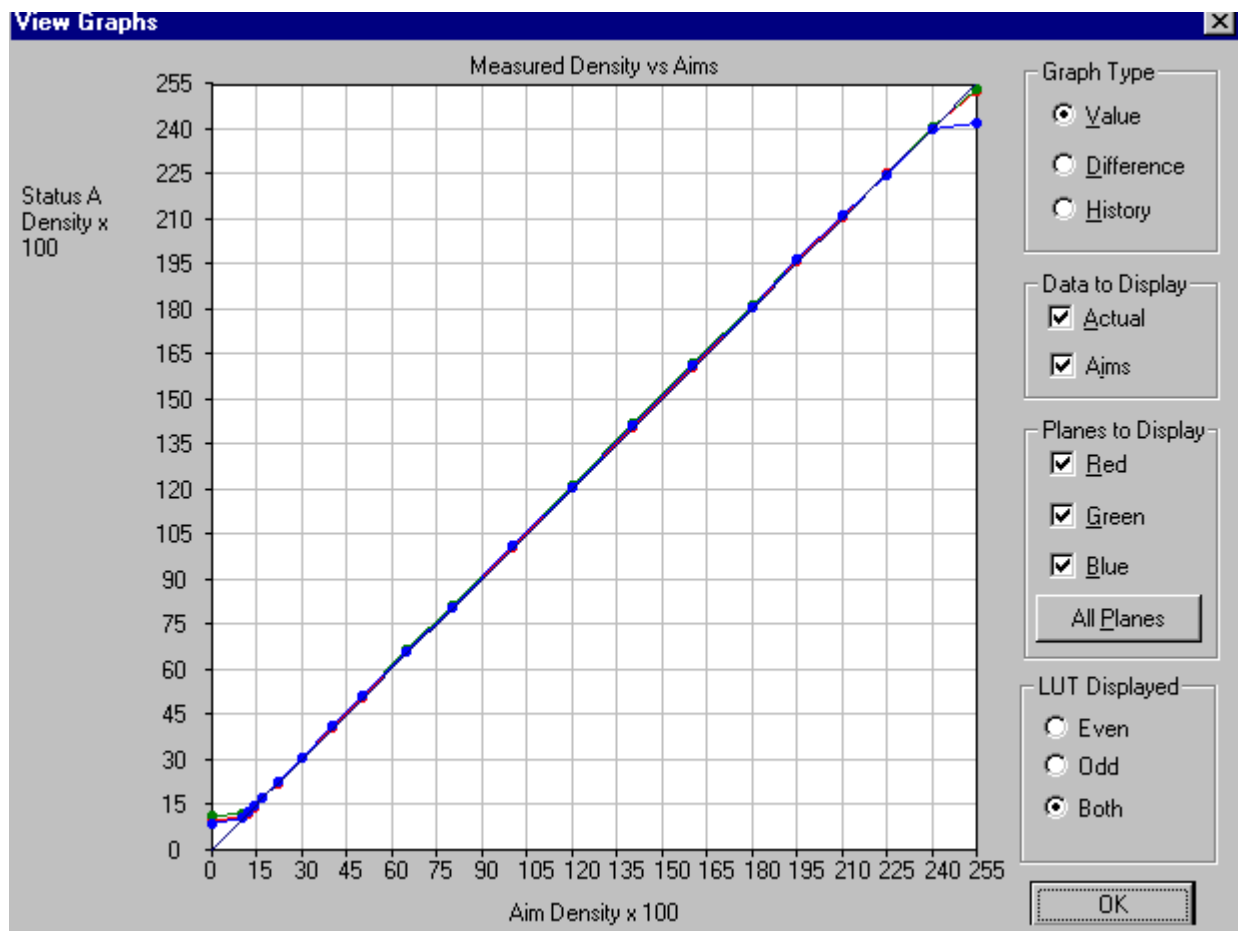
IMPORTANT: Printer calibration should not be mistaken for color management. Color management is provided by software applications that are independent of the printer and the calibration software.

Viewing Graphs

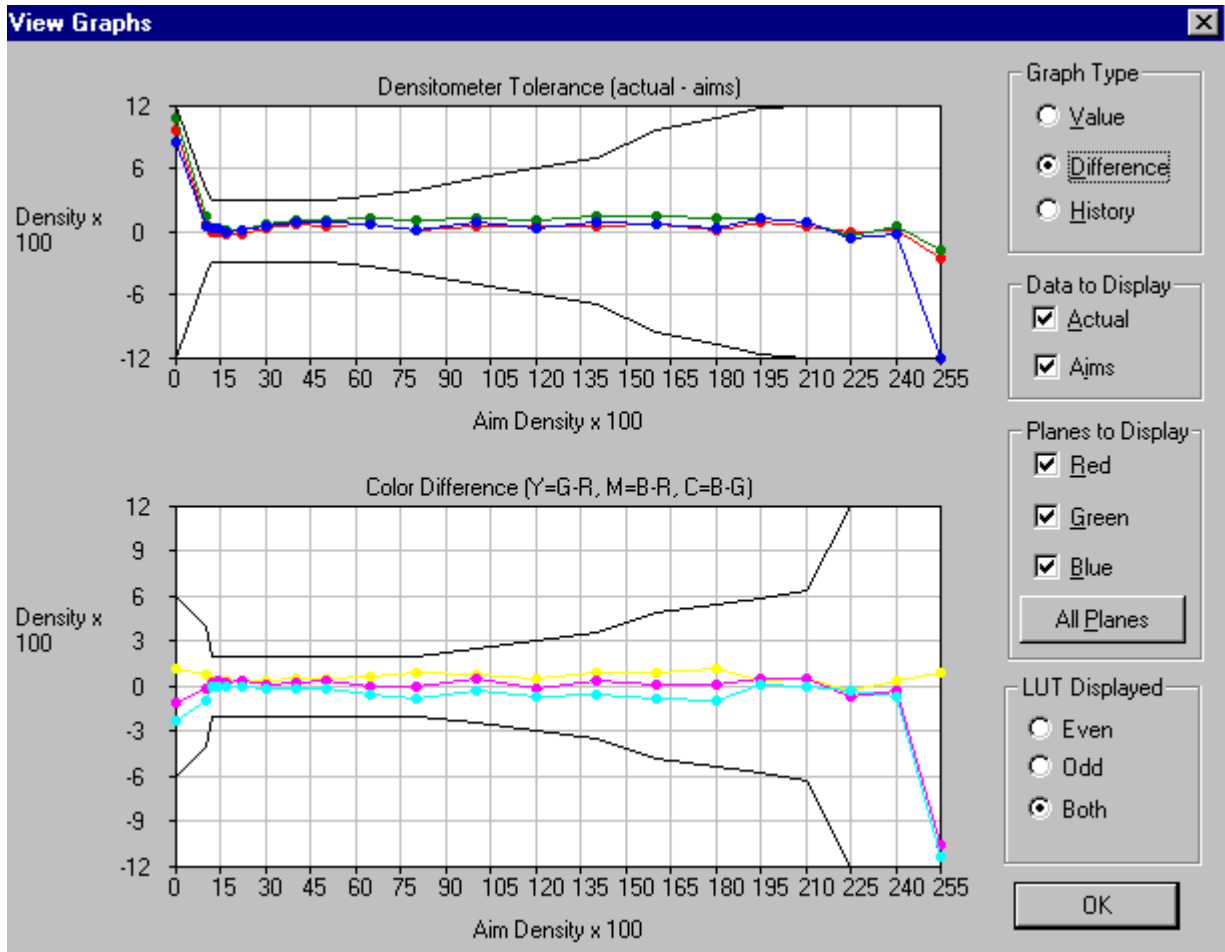
The View Graphs feature provides access to the available graphs from the most recently completed calibration.

Examples of the Value, Difference, and History Graphs follow. The Value and Difference Graphs reflect the densitometer values that were last read. The History Graph displays the data from completed calibrations.

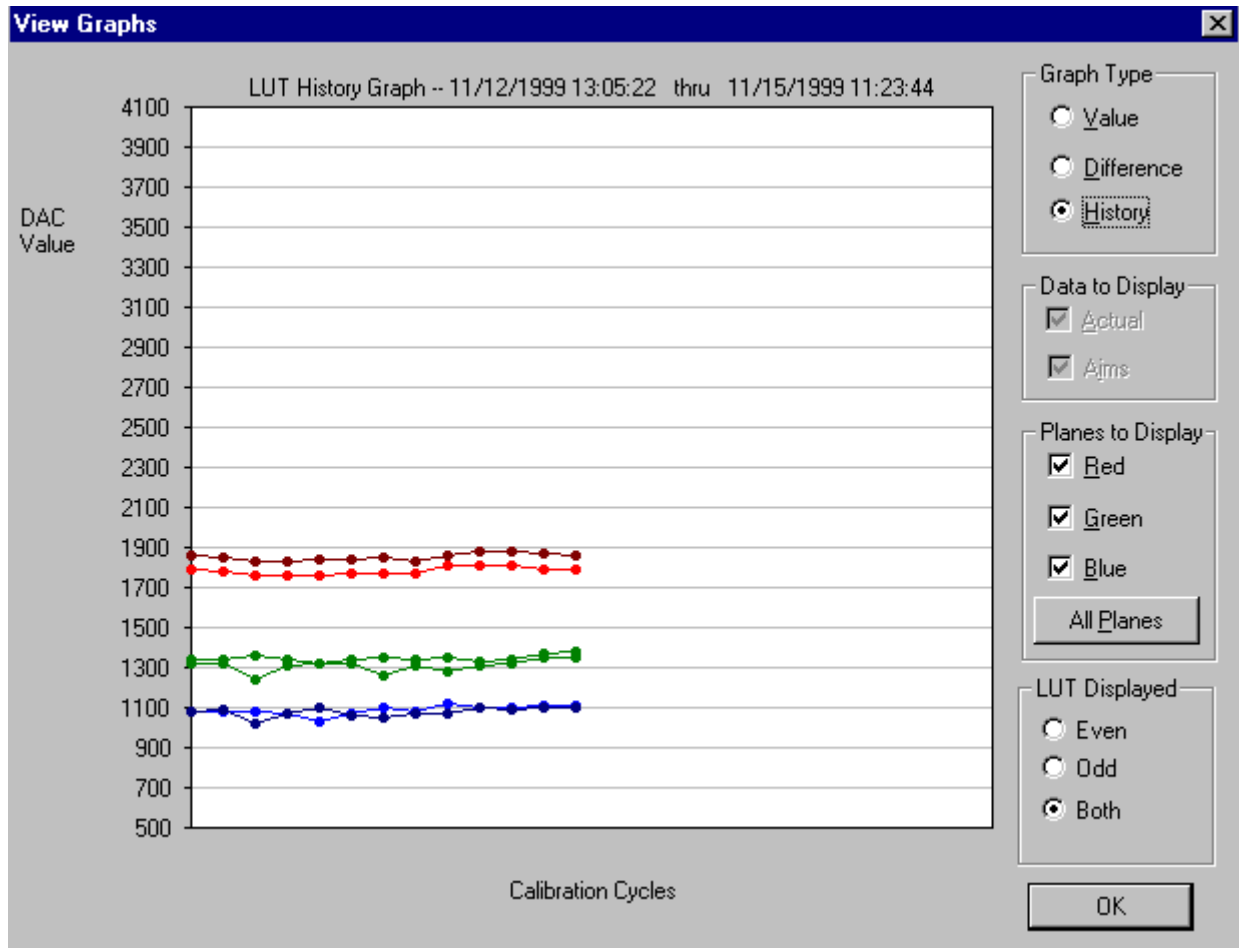
Value Graph



Difference Graph

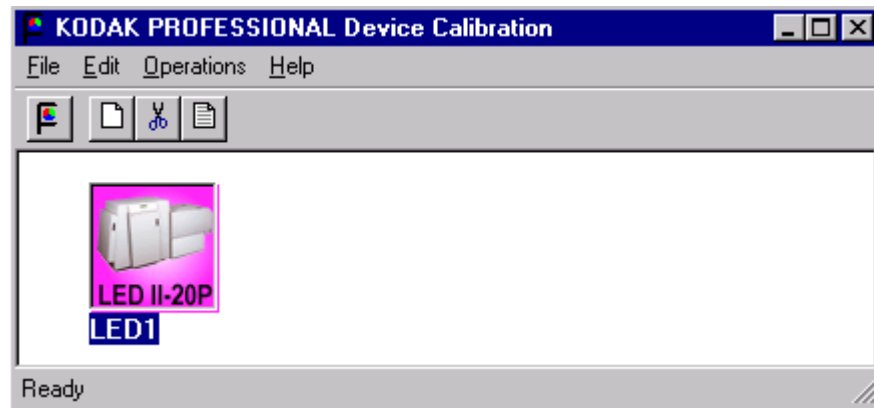


History Graph

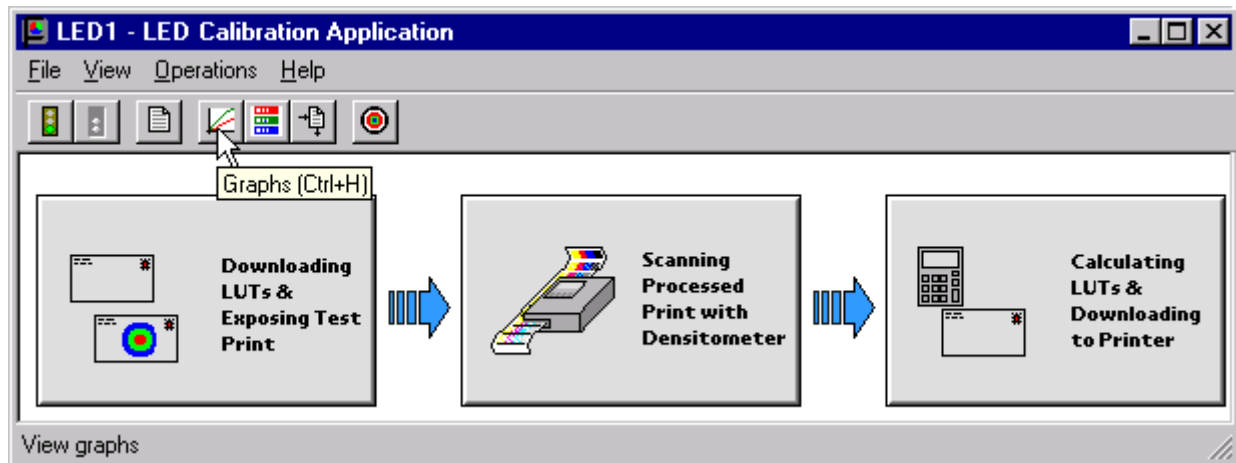


To view calibration graphs:

1. From the Device Calibration window, double-click the device for which you want to view graphs.



The display shows the LED Calibration Application window.



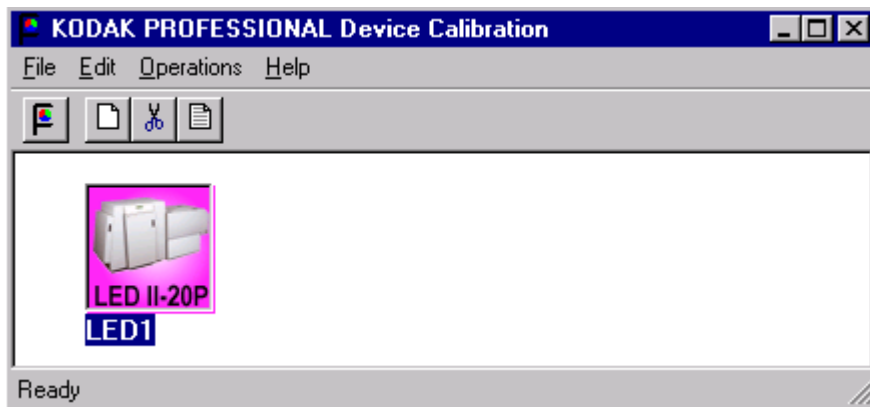
2. Click the **Graphs** icon or select *View->Graphs*.
The display shows one of the graphs; typically it is the Value graph.
3. Select the Graph Type that you want to view. When the graph is displayed, select the type of data and planes that you want to see displayed.

NOTE: The graph will be blank if the printer has not been calibrated.

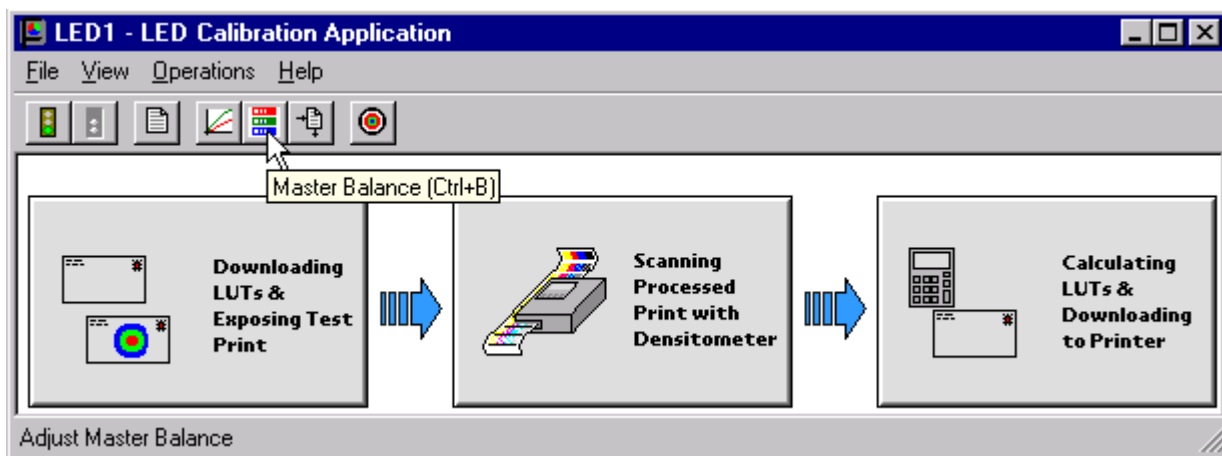
Applying a Master Balance (NT Systems Only)

Master Balance is a method that allows you to temporarily modify printer neutral calibration. This may be desired for customizing a particular job or correcting for a short-term processing shift. It does not replace calibrating the printer.

1. From the Device Calibration window, double-click the device for which you want to perform a master balance.

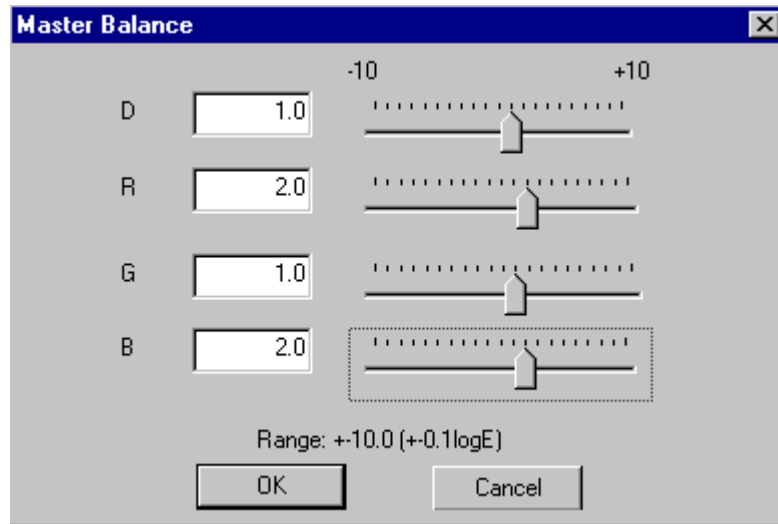


The display shows the LED Calibration Application window.



2. Click the **Master Balance** icon or select *Operations->Master Balance*.

The display shows the Master Balance dialog box.

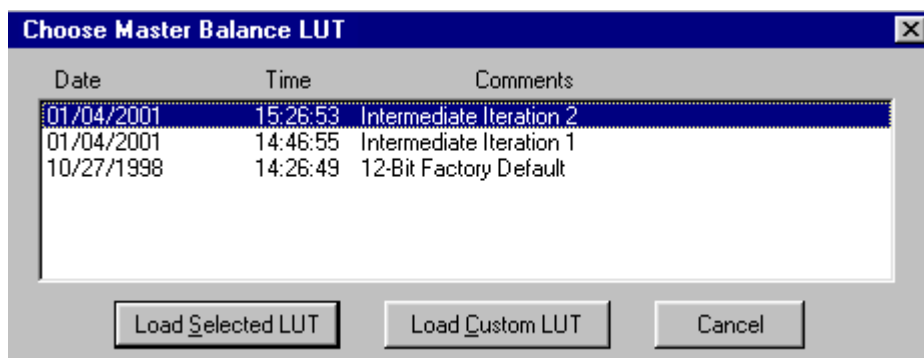


3. Click and drag the sliders as needed for Density, Red, Green, or Blue balance.
For Density, Red, Green, and Blue, 1 unit of change is equal to 0.01 log exposure or 1 color correction (cc) units. For unit changes of less than one, you can type the number directly into the edit box.
4. Click **OK** to accept the changes (or click **Cancel** to cancel the master balance).

The display shows the Choose Master Balance LUT dialog box.

IMPORTANT: In the next step, do not select the default LUT.

5. Select one of the LUTs from the dialog box and click **Load Selected LUT** or click **Load Custom LUT** and follow the prompts to load a custom LUT.



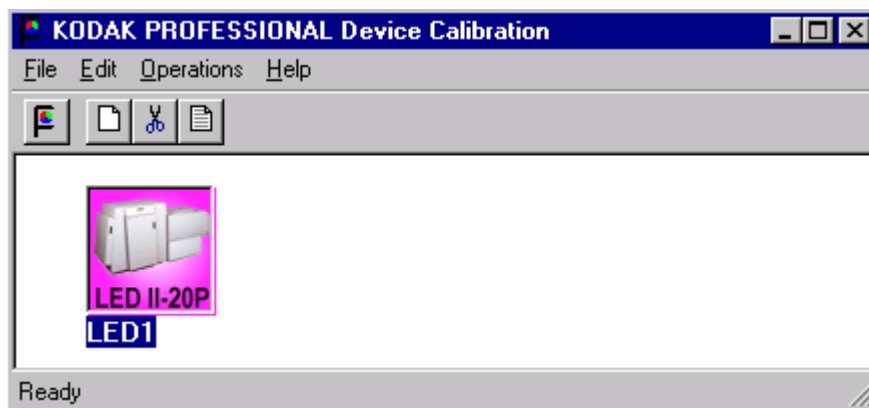
A new LUT is calculated based on the selected LUT and the input DRGB values. The LUT is downloaded to the printer, **overwriting the current LUT**. This LUT will be the current printer LUT until a new LUT is sent.

Sending LUTs

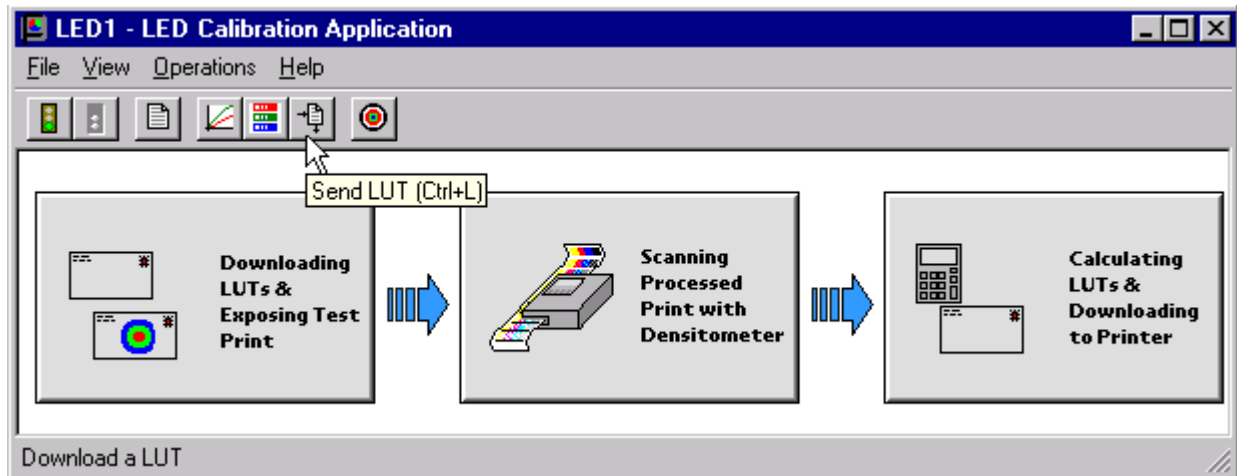
The Send LUT to Printer feature allows you to overwrite the current LUT in the printer. You can create a valid printing LUT using an ASCII text editor. This option sends the selected LUT to the printer, overwriting any existing LUT.

To send a LUT to the Printer:

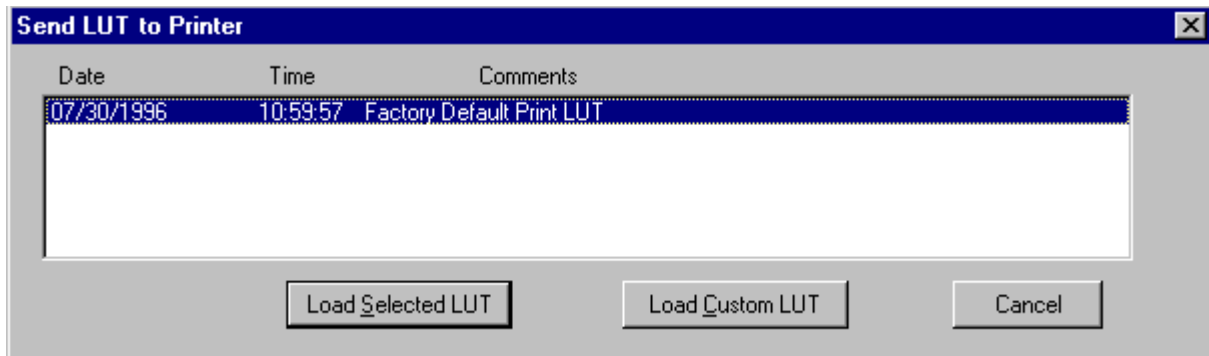
1. From the Device Calibration window, double-click the device for which you want to send a LUT.



The display shows the LED Calibration Application window.



2. Click the **Send LUT** icon or select *Operations->Send LUT*. The display shows the Send LUT to Printer dialog box.



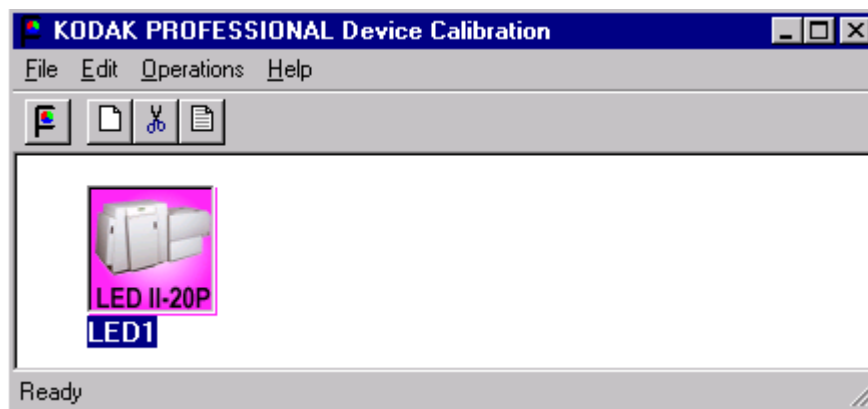
3. Select one of the LUTs from the dialog box and click **Load Selected LUT** or click **Load Custom LUT** and follow the prompts to load a custom LUT. The LUT is downloaded to the printer, **overwriting the current LUT**.

Sending Targets

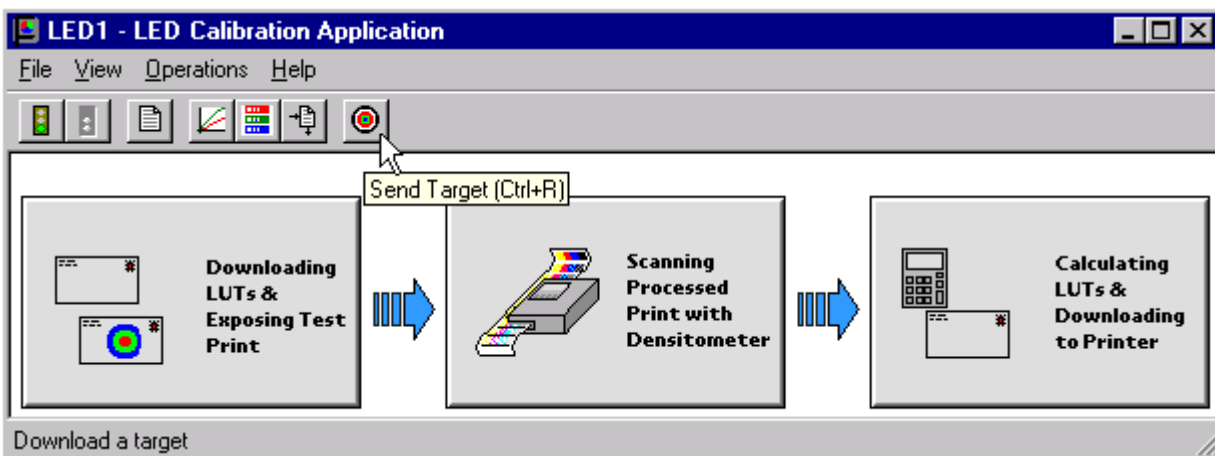
The Send Target feature enables you to send any properly formatted target file to the printer without performing a calibration. The target file must contain image data in the format for the *Kodak Professional LED II Printer 20P/20R*. The format of this file must be raw RGB pixel interleaved.

To send a test target to the printer:

1. From the Device Calibration window, double-click the device for which you want to send a test target.



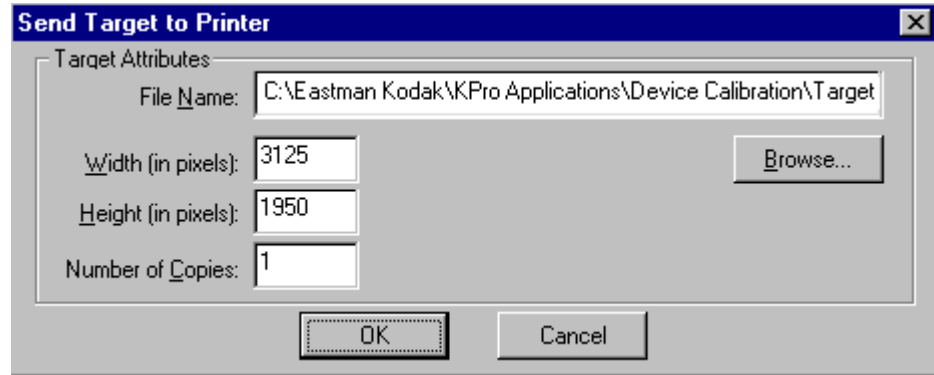
The display shows the LED Calibration Application window.



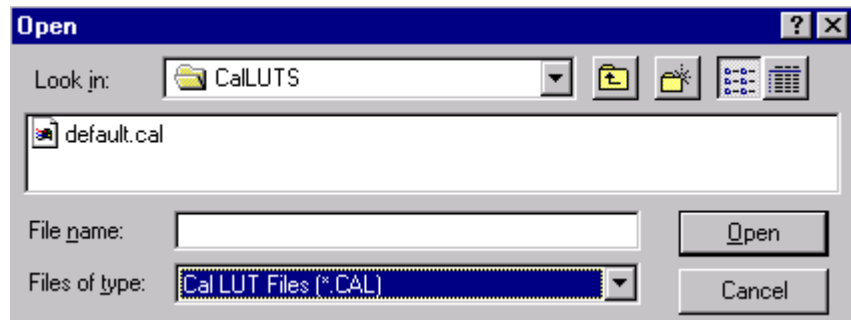
2. Click the **Send Target** icon or select *Operations->Send Target*.

The display shows the Send Target to Printer dialog box. (The versions for both NT and MACINTOSH Systems are shown.)

NT Systems



NOTE: Users of NT systems can click **Browse** to select another file name. The display shows the Open dialog box. Select the file name, then click **Open**.



MACINTOSH Systems



3. Enter the desired settings and click **OK** to save the settings (or **Cancel** to keep the previous settings).
The selected test target is sent to the printer.

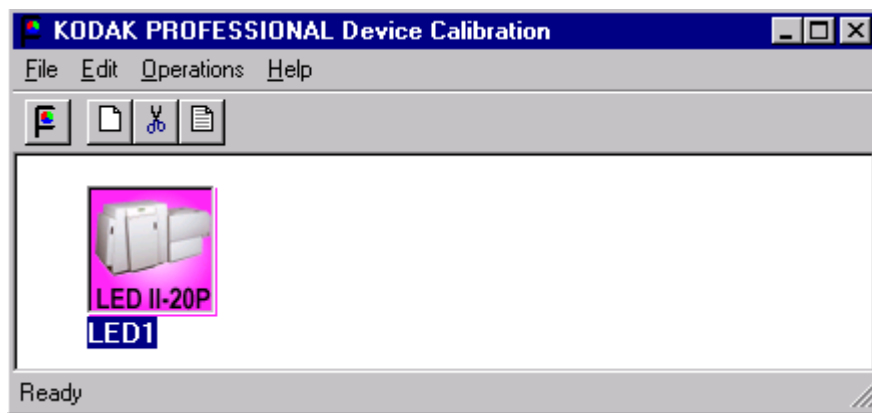
Editing the Device Configuration

The Edit Configuration feature allows you to change the printer's calibration configuration attributes. **However, it is recommended that you use the default settings for these attributes for most operations.**

Edit Configuration consists of a set of six tabs—each with related configuration attributes. There can be only one set of configuration attributes for the printer calibration application at a time. If you make any changes to information on one or more of the tabs and then click **OK** to save your changes, the changes will overwrite the previous attributes used for the automated calibration.

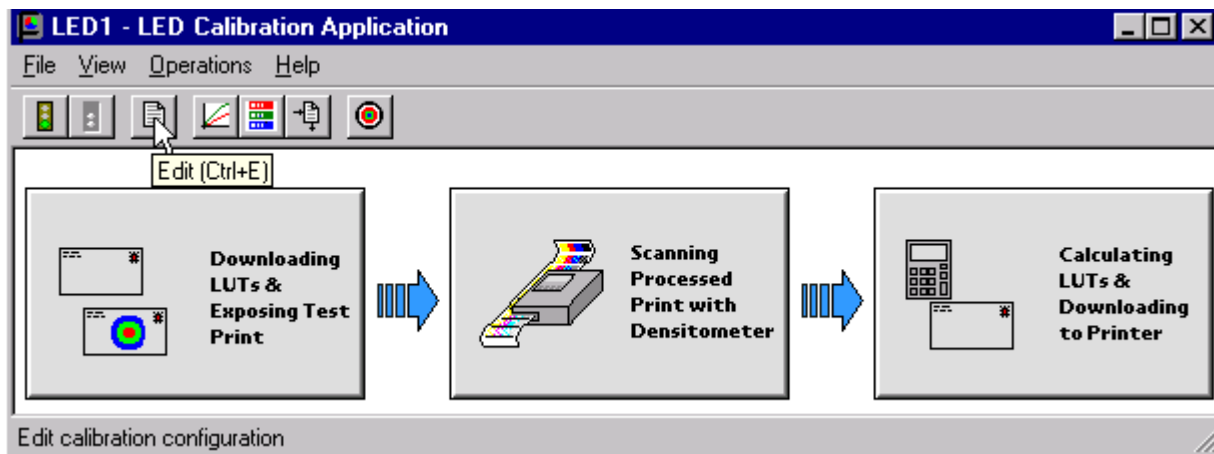
To edit the device configuration:

1. From the Device Calibration window, double-click the device for which you want to change the calibration configuration.

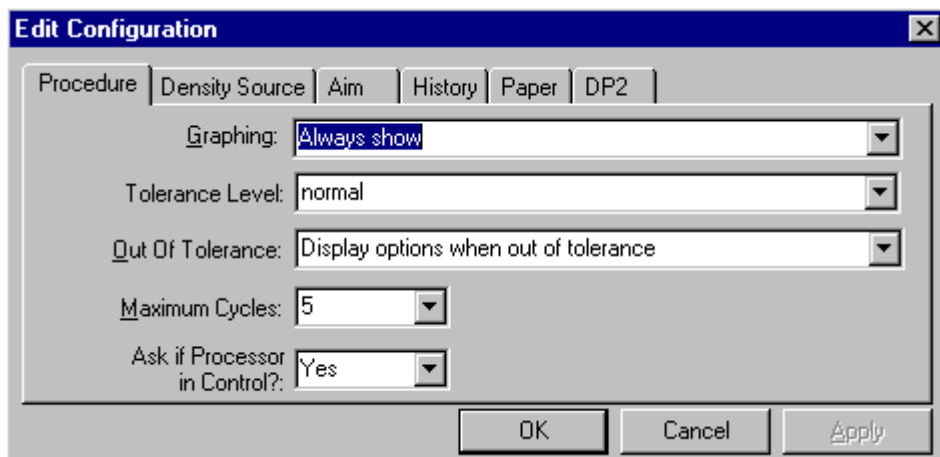


The display shows the LED Calibration Application window.

2. Click the **Edit** icon or select *File->Edit*.



The display shows the Edit Configuration window with the Procedure tab displayed.



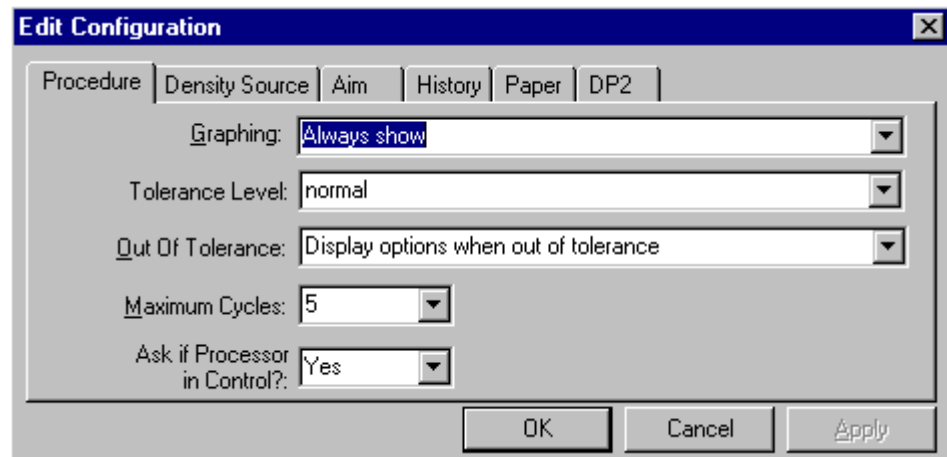
3. To navigate among the tabs, click the tab you want and follow the instructions for updating the information for that tab.

***IMPORTANT:** Whenever you click **OK**, the software assumes ALL changes to the Edit Configuration are complete and the Edit Configuration window closes. Similarly, you can click **Cancel** at any time while the Edit Configuration window is open; any changes you made to any of the tabbed information are canceled and the Edit Configuration window closes.*

For Macintosh users only: you can click **Default** at any time to reset the attributes to their factory defaults and then click **OK** to save the defaults.

Editing Information on the Procedure Tab

The Procedure tab contains general configuration attributes as shown and described below. The values displayed in the example are the default settings.



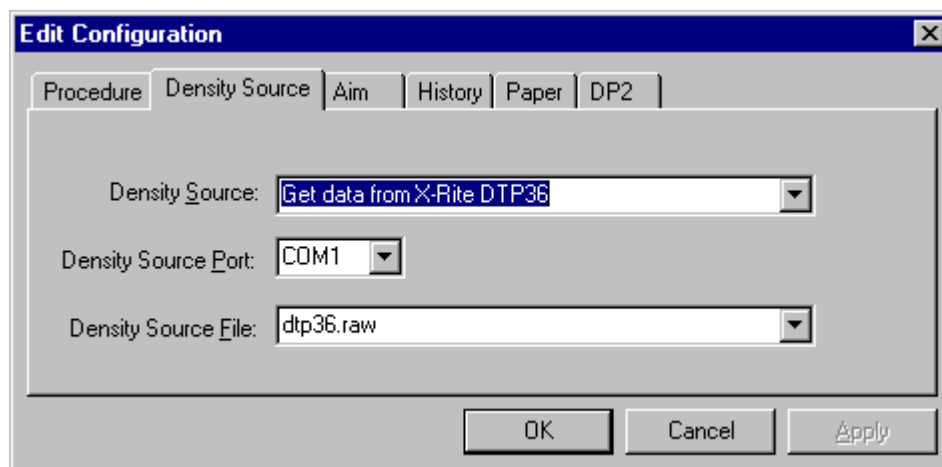
Procedure Attribute	Description
Graphing	Instructs the application when to display the graphs of the data
Tolerance Level	Indicates whether the level of tolerance is Normal, Loose, Strict, or ColorMetallic Normal. NOTE: ColorMetallic paper requires its own tolerance file.
Out of Tolerance	Provides the flexibility to interact at each step or to use a fully automated calibration
Maximum Cycles	Indicates the maximum number of iterations the calibration procedure will perform if "Out of Tolerance" is set to "Automatically iterate up to maximum cycles."
Processor In Control	Indicates whether the Processor In Control dialog box is to be displayed at the beginning of the calibration process

To edit the configuration information on the Procedure tab:

1. Use the drop-down lists to change the Procedure information as needed.
2. If you have completed all editing (including information on the other tabs), click **OK** to save the changes and close the Edit Configuration window. (Or, click **Cancel** to cancel all changes.)
3. To continue making changes to the Edit Configuration, click another tab and make changes as needed.

Editing Information on the Density Source Tab

The Density Source tab specifies how the calibration application is to receive density data. The values displayed in the example are the default settings.



<i>Density Source Attribute</i>	<i>Description</i>
Density Source	Indicates the source (local densitometer or file or, for PC applications only, centralized densitometer application) of the density data.
Density Source Port	Indicates the name of the RS-232 port that the densitometer is connected to. This port is the source of the density data. The name of the port is specific to the computer system platform. NOTE: This is only used if the Density Source is DTP36.
Density Source File	Indicates the filename for the source of density data. This is only used if the Density Source is a file. If you designate a file as the density source, this is the file name you use for "Creating a Density File for Use with Calibration" on page 3-36 .

To edit the configuration information on the Density Source tab:

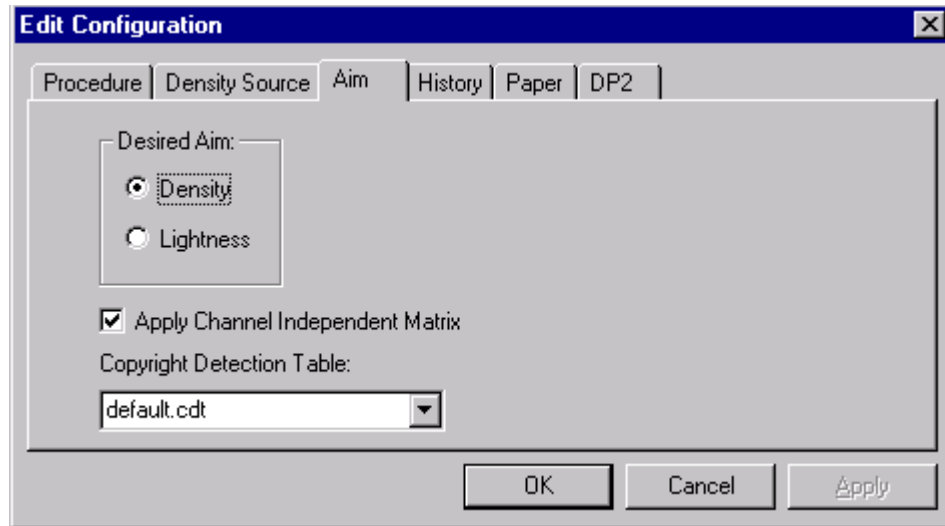
1. Use the drop-down lists to change the Density Source information as needed.
2. If you have completed all editing (including information on the other tabs), click **OK** to save the changes and close the Edit Configuration window. (Or, click **Cancel** to cancel all changes.)
3. To continue making changes to the Edit Configuration, click another tab and make changes as needed.

Editing Information on the Aim Tab

The Aim tab specifies:

- whether the aims used for calibration are Density Aims or Lightness Aims
- whether to apply the Channel-Independent Matrix
- which table to use if Copyright Detection is functional

The values displayed in the example are the default settings.



Attribute	Description
Desired Aim	Indicates whether to use Density Aims or Lightness Aims for calibration. Using Lightness Aims will improve both the highlights and shadows of your prints.
Apply Channel Independent Matrix?	Indicates whether or not to apply the Channel-Independent Matrix to the aim values. If the matrix is applied, the number of cycles required to successfully calibrate the printer should be reduced.
Copyright Detection Table	Select the table to be used. This feature is available with Gen II LED printers only. Only use this feature as instructed by Kodak.

To edit the configuration information on the Aim tab:

1. Change the Aim information as needed.
2. If you have completed all editing (including information on the other tabs), click **OK** to save the changes and close the Edit Configuration window. (Or, click **Cancel** to cancel all changes.)
3. To continue making changes to the Edit Configuration, click another tab and make changes as needed.

Editing Information on the History Tab

The History tab specifies information about maintaining calibration history data. The values displayed in the example are the default settings.

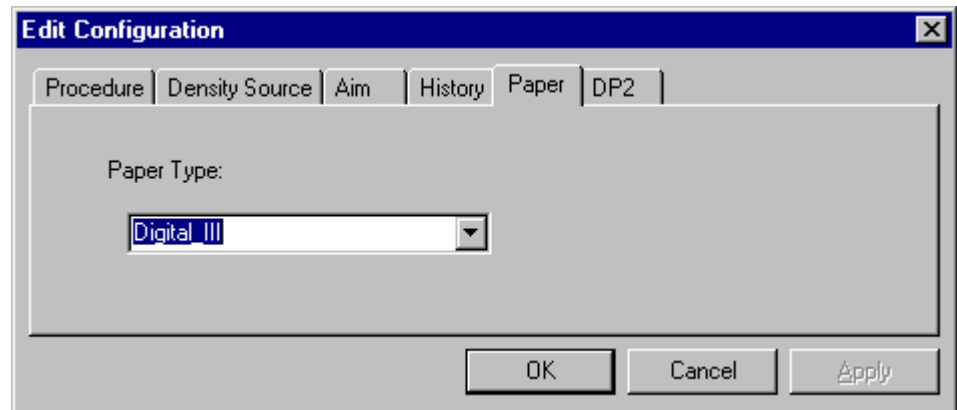
Attribute	Description
Keep History For (days)	Indicates the number of days that the calibration LUT, print LUT, density data and LUT history information (LED trend data) are to be kept. Information older than the specified number of days will be deleted.
Log Type	Indicates the type of log file available during calibration. All recordable events or just the recordable errors can be logged to a selected filename.
Keep log for (days)	Indicates the number of days that the error and events information is to be kept. Information older than the specified number of days will be deleted.
Log File Name	The name of the file that contains the logged information.

To edit the configuration information on the History tab:

1. Change the History information as needed.
2. If you have completed all editing (including information on the other tabs), click **OK** to save the changes and close the Edit Configuration window. (Or, click **Cancel** to cancel all changes.)
3. To continue making changes to the Edit Configuration, click another tab and make changes as needed.

Editing Information on the Paper Tab

The Paper tab allows you to specify the paper being calibrated. The value displayed in the example is the default setting.



<i>Attribute</i>	<i>Description</i>
Paper Type	Select from the list of supported paper types.

To edit the configuration information on the Paper tab:

1. Change the Paper Type if needed.
2. If you have completed all editing (including information on the other tabs), click **OK** to save the changes and close the Edit Configuration window. (Or, click **Cancel** to cancel all changes.)
3. To continue making changes to the Edit Configuration, click another tab and make changes as needed.

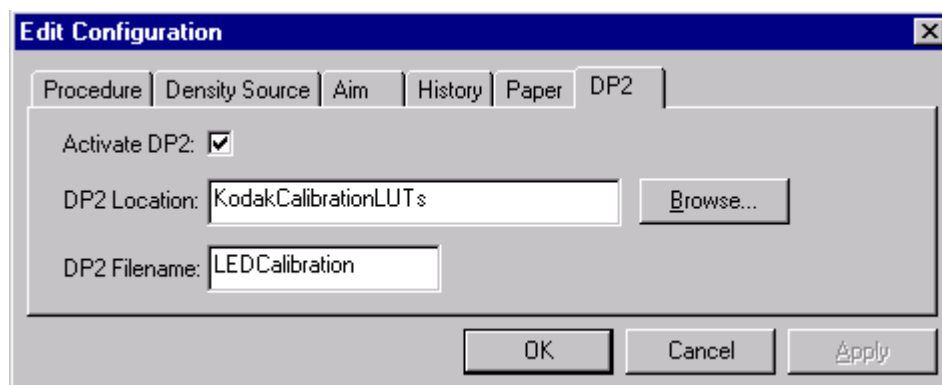
Editing Information on the DP2 (NT Systems) or KPIS (MACINTOSH Systems) Tab

The DP2 (or for MACINTOSH Systems, KPIS) tab specifies whether to activate DP2 (or KPIS) interoperability, and if so, names the directory and filename designated for the DP2 (or KPIS) information.

There are minor differences in the editing of DP2 and KPIS information.

Editing DP2 Information (NT Systems)

When you click the DP2 tab of the Edit Configuration window, the tab is displayed. The values in the example are the default settings.



Attribute	Description
Activate DP2	Indicates if the calibration procedure should generate a LUT file to be used with the DP2 system. When you select <i>Operations->Send LUT</i> or <i>Operations->Master Balance</i> , the LUTS are also sent to the DP2 location to be used with the DP2 system.
DP2 Location	Directory to contain generated LUT files for use with DP2
DP2 Filename	Name of the file containing the DP2 LUT files

To edit the configuration information on the DP2 tab:

1. If DP2 is not already activated, click the **Activate DP2** checkbox (click again to deactivate) so that the dialog box looks like the example above.
2. To change the DP2 Location, type a new directory name or click **Browse** and select another directory.
3. If needed, change the DP2 Filename.
4. If you have completed all editing (including information on the other tabs), click **OK** to save the changes and close the Edit Configuration window. (Or, click **Cancel** to cancel all changes.)
5. To make other changes to the Edit Configuration, click another tab and make changes as needed.

Editing KPIS Information (MACINTOSH Systems)

If you are using the calibration output files with the KPIS system, it is necessary to activate KPIS and assign a filename and location to the output file.

When you click the KPIS tab of the Edit Configuration window, the following tab is displayed. The values in the example are the default settings.

The screenshot shows a dialog box titled "Edit Configuration" with several tabs: Procedure, Density Source, Aim, History, Paper, and KPIS. The KPIS tab is selected and highlighted. Inside the KPIS tab, there is a section with the following controls:

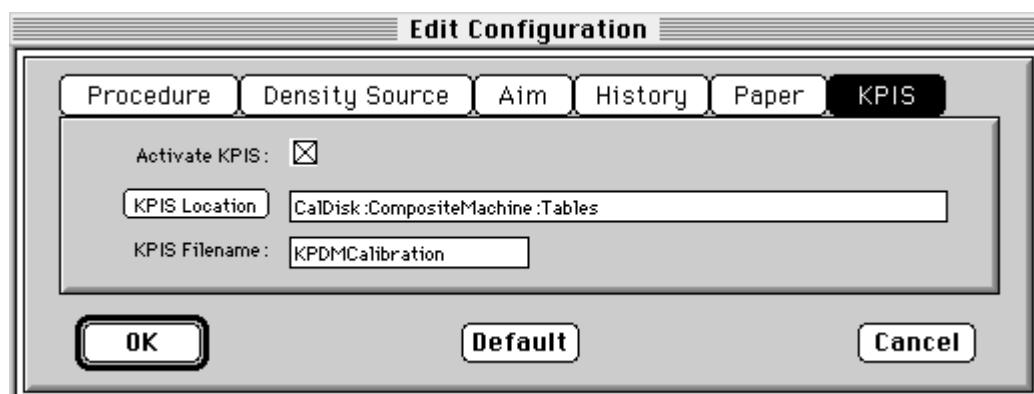
- "Activate KPIS:" followed by an unchecked checkbox.
- "KPIS Location:" followed by a text input field.
- "KPIS Filename:" followed by a text input field.

At the bottom of the dialog box, there are three buttons: "OK", "Default", and "Cancel".

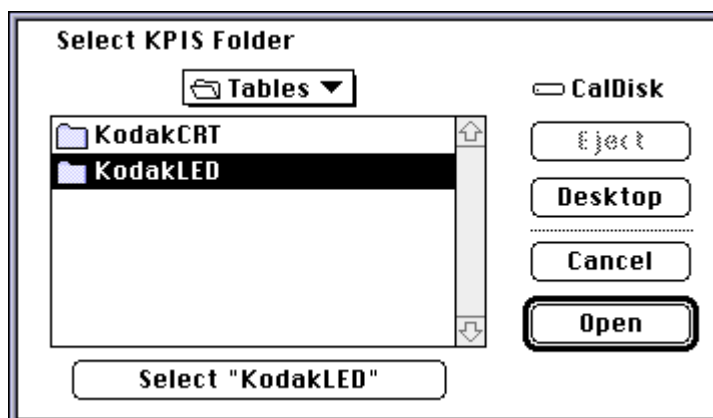
<i>Attribute</i>	<i>Description</i>
Activate KPIS	Indicates if the calibration procedure should generate a LUT file to be used with the KPIS system
KPIS Location	Directory to contain generated LUT files for use with KPIS
KPIS Filename	Name of the file containing the KPIS LUT files

To edit the configuration information on the KPIS tab:

1. Click the **Activate KPIS** checkbox (click again to deactivate).
The display shows the Edit Configuration window with the default settings for KPIS Location and KPIS Filename.

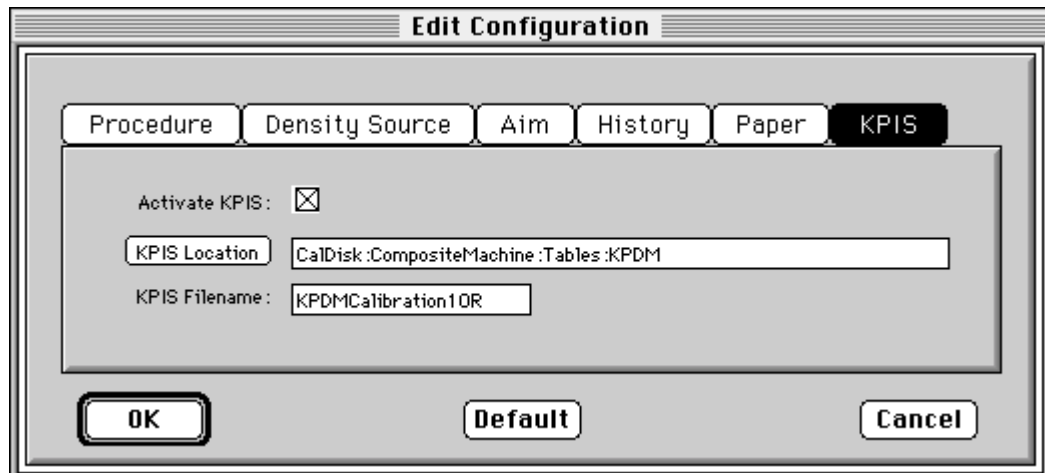


2. To change the directory for the KPIS file:
 - a. Click **KPIS Location**. The display shows the Select KPIS Folder dialog box.



- b. If needed, browse to find the folder you want.
- c. Click **Select "directoryname"** (the example above shows **Select "KodakLED"**).

The display shows the updated Edit Configuration window with updated File Location of CalDisk:CompositeMachine:Tables:KodakLED.



Completing the Edit Configuration

When you finish editing the configuration file, click **OK** to save the attributes. (Click **Cancel** to exit without saving your changes. MACINTOSH System users: you can click **Default** at any time to reset the attributes to their factory defaults and then click **OK** to save the defaults.)

Creating a Density File for Use with Calibration

During calibration, you have the option of obtaining density data from a file or by scanning a processed test target through an X-RITE DTP 36 densitometer. The option is determined by the entry in the device configuration file. If the configuration file is set up to receive density data from a file and you are creating the file:

1. Scan the print into your densitometer.
2. Save the data to file using the density data file format specification (see [“File Formats”](#) below). The *Kodak Device Calibration Software* does not perform this function.
3. Move the density data file that you just saved to the “Dens” folder within the device folder for your specific device. The filename should match the Density Source File selected on the Density Source tab of the Edit Configuration window (see [“Editing Information on the Density Source Tab”](#) on page 3-28).

File Formats

NOTE: If a file contains data in a tabular format, each entry may be separated by multiple spaces and tabs; however, when the file is saved by the application, each group of multiple spaces and tabs is automatically converted to a single tab.

DensityDataRaw (TECHNET Format)

Example:

```
R2340 G1000 B2010  
R2350 G1010 B2020  
R2360 G1020 B2030  
R2370 G1030 B2040
```

Installing the Densitometer

This section describes how to install the X-RITE DTP 36 Densitometer, including changing some of the attributes on the Edit Configuration window to accommodate the densitometer.

IMPORTANT: The supported densitometers use a RS-232 interface for communication to the host. Each platform uses different designations to identify the RS-232 ports.

To install the densitometer:

1. Connect the appropriate cable (provided by the user, supplier or with the densitometer) between the densitometer and the host computer.

NOTE:For the X-RITE DTP 36 Densitometer:

- Remove the protective strip (for shipping) from the densitometer.
 - Verify that the densitometer is configured with the factory defaults. (Refer to the densitometer manual for this information.)
 - Perform an initial calibration of the densitometer. (Refer to the densitometer manual.)
2. Run the calibration software for the printer and click the **Edit** icon to access the Edit Configuration window; see ["Editing the Device Configuration" beginning on page 3-25](#).
 3. Click the Density Source tab.
 4. Edit the attribute for the Density Source. Select the appropriate choice for your densitometer from the list.
 5. Edit the attribute for the Density Source Port. Enter the name of the port that the RS-232 cable is connected to on the host computer system.

<i>Host System</i>	<i>Default Port</i>
MACINTOSH System	Printer
WINDOWS NT System	COM 1

6. Click **OK** to save the changes to the configuration.

IMPORTANT: Densitometers require calibration at regular intervals. Refer to your densitometer manual or instructions on how to calibrate your densitometer and perform a calibration.

4 *Installing and Using the Centralized Densitometer Application*

IMPORTANT: This chapter pertains only to users of WINDOWS NT Systems.

The Centralized Densitometer Application topics covered in this section include:

- Installing the application on a WINDOWS NT System
- Modifying printer and port information
- Viewing graphs

Installing the Centralized Densitometer Application

If you have a network of printers and will be using the Centralized Densitometer application, install it on the host computer that will be connected to the central densitometer.

NOTE: The *Kodak Professional* Device Calibration application must be installed on each host PC connected to a printer; the Centralized Densitometer application needs to be installed only on the computer with the densitometer.

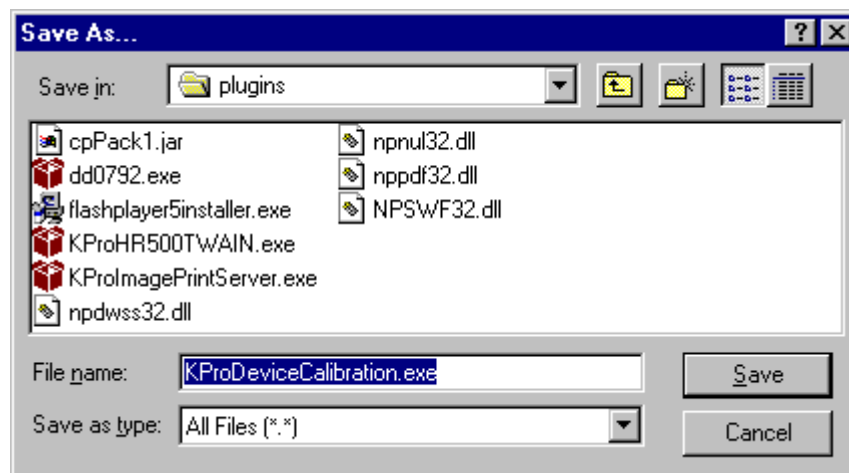
System Requirements

- WINDOWS NT 4.0 with service pack 3 or higher
- 170 KB available disk space
- At least 2 MB main system memory
- CD ROM Drive

Installation Procedure

1. If you are installing the software from the supplied CD-ROM:
 - a. place the CD in your CD-ROM drive.
 - b. When the display shows the Browser, select **LED Printer**.
2. If you are downloading the installation files from the Kodak web site, go to <http://www.kodak.com/global/en/service/printers/led2Printer/led2Printer.shtml>.
3. Under the heading Product Support, select **Drivers, Software and Firmware**.
4. Select **Calibration Utilities**.
5. Under the heading **Download File**, select **KODAK PROFESSIONAL Device Calibration**.

The display shows the Save As dialog box.

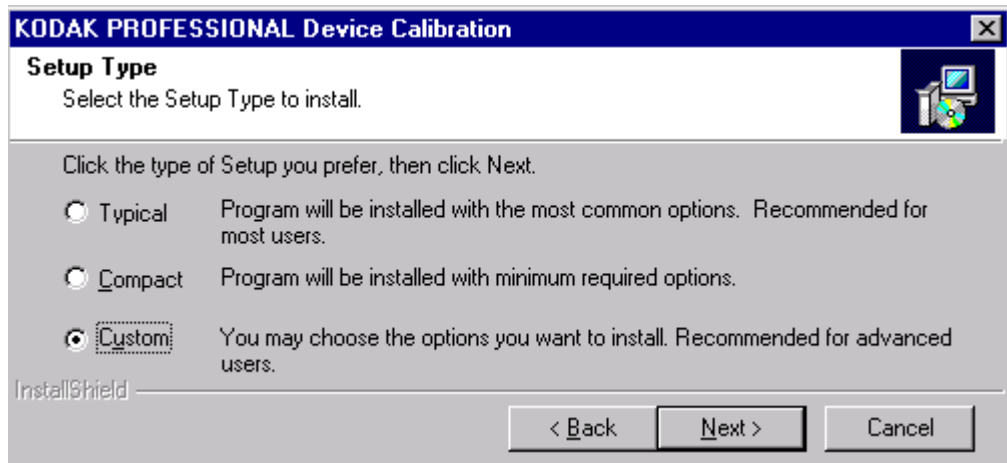


6. Either accept the default path and file name or select another path and file name and save the file.
7. Open the installation file (KODAK PROFESSIONAL Device Calibration.exe). The display shows the splash screen for KODAK PROFESSIONAL Device Calibration and a Setup message.

8. After the Welcome screen is displayed, click **Next**.
9. Read the license agreement.
 - To accept the terms and continue the installation, click **Yes**.
 - Or, to cancel the installation, click **No**.
10. Read the readme information, then click **Next**.

The display shows a dialog box for choosing the destination location.
11. Either accept the default path and folder or click **Browse** to select another path and folder.

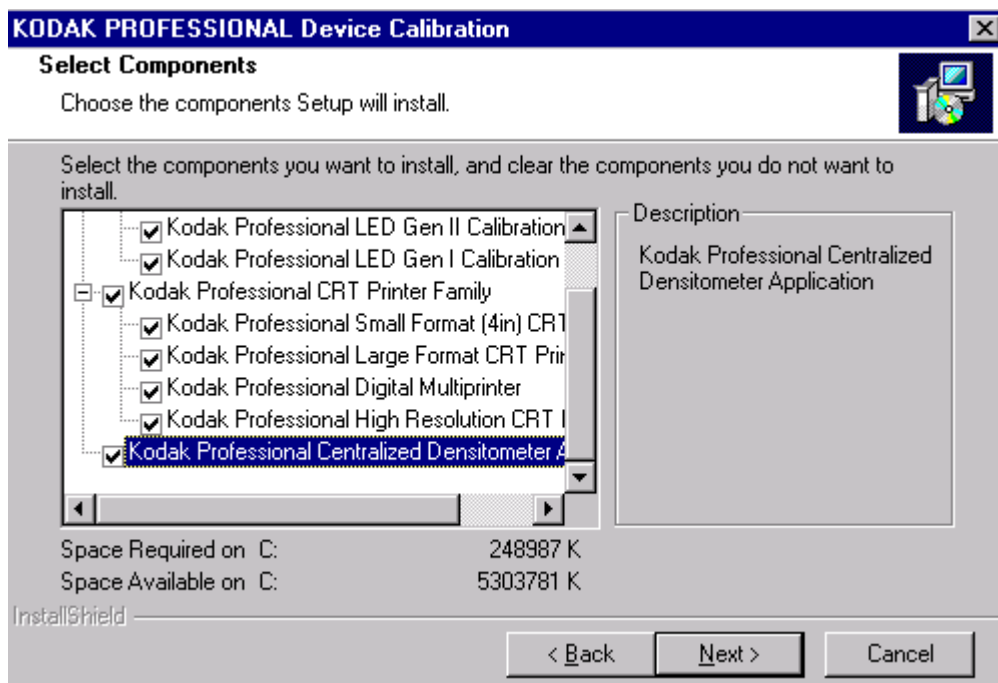
The display shows the Setup Type dialog box.



12. Select **Custom** and click **Next**.

The display shows the Select Components dialog box.

13. Click to check the box next to *Kodak Professional Device Calibration – Centralized Densitometer* and click **Next**.

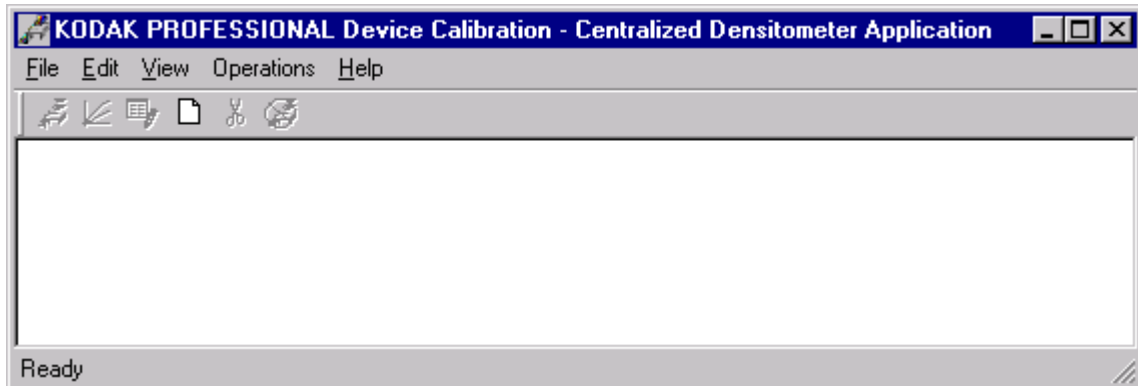


14. Click **Next** to install the software on your system.
The display shows the Setup Status dialog box. You do not need to do anything unless you want to Cancel the setup.
15. When the setup is complete, click **Finish** to restart the host computer.
16. If you used a CD to install the software, remove the CD-ROM and store it in a safe place.

Using the Centralized Densitometer Application

1. Click the *Windows* Start button and select *Programs -> Eastman Kodak -> KProApplications -> KODAK PROFESSIONAL Device Calibration -> KODAK PROFESSIONAL Centralized Densitometer* to open the Centralized Densitometer application.

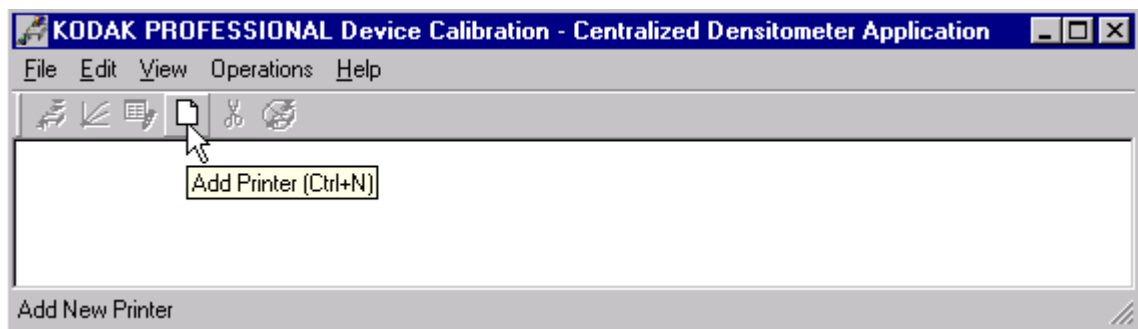
The display shows the Centralized Densitometer Application window.



With the *Kodak Professional* Device Calibration - Centralized Densitometer Application, you can:

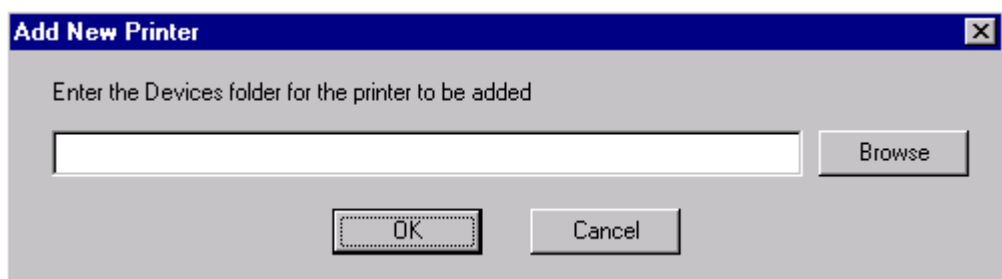
- add or delete a printer
- change the densitometer port
- for a selected printer
 - change the printer information
 - measure the density during a calibration cycle
 - view calibration graphs

Adding a Printer

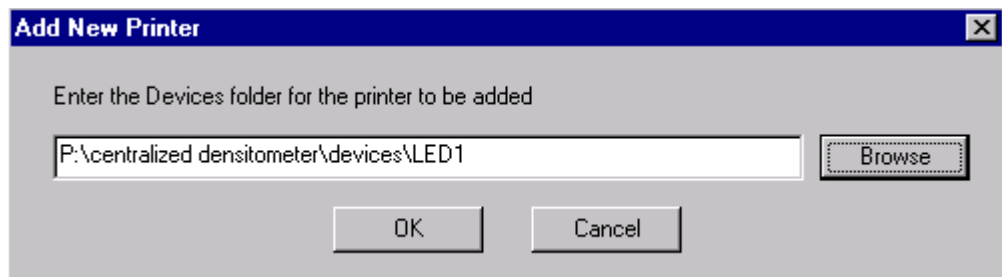


1. Click the **Add Printer** icon or select *File->New* on the Centralized Densitometer Application window.

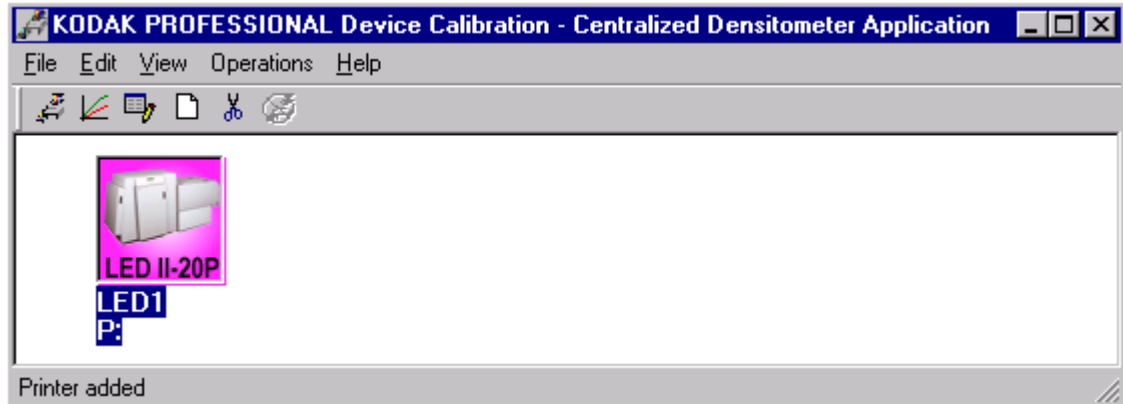
The display shows the Add New Printer dialog box.



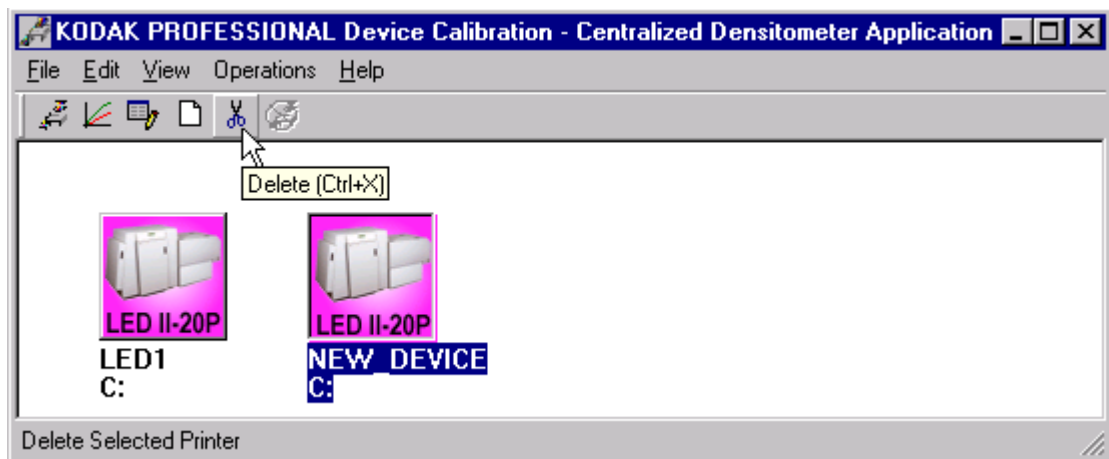
2. Either type a path or click **Browse** and select a path. Click **OK**.



The display shows the Centralized Densitometer Application window with the new printer added.



Deleting a Printer



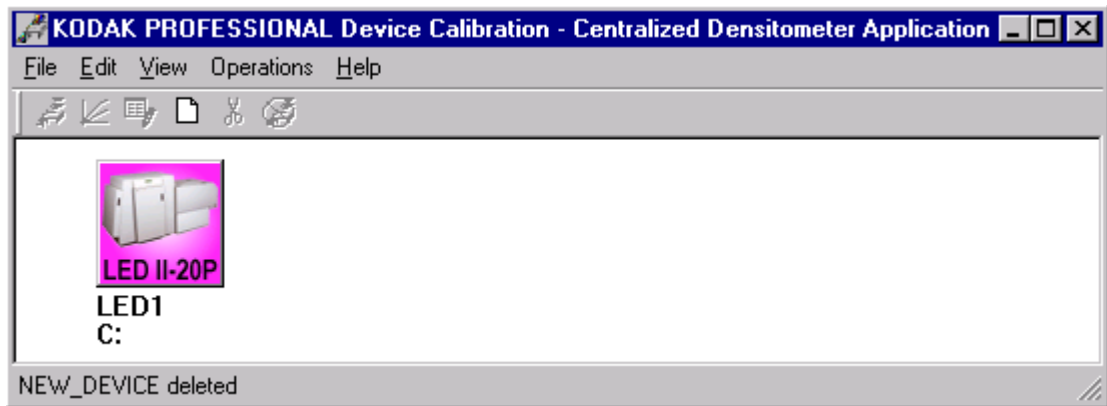
1. Highlight the printer you want to delete.
2. Click the **Delete** icon or select *Edit->Delete Printer* on the Centralized Densitometer Application window.

The display shows the dialog box below.

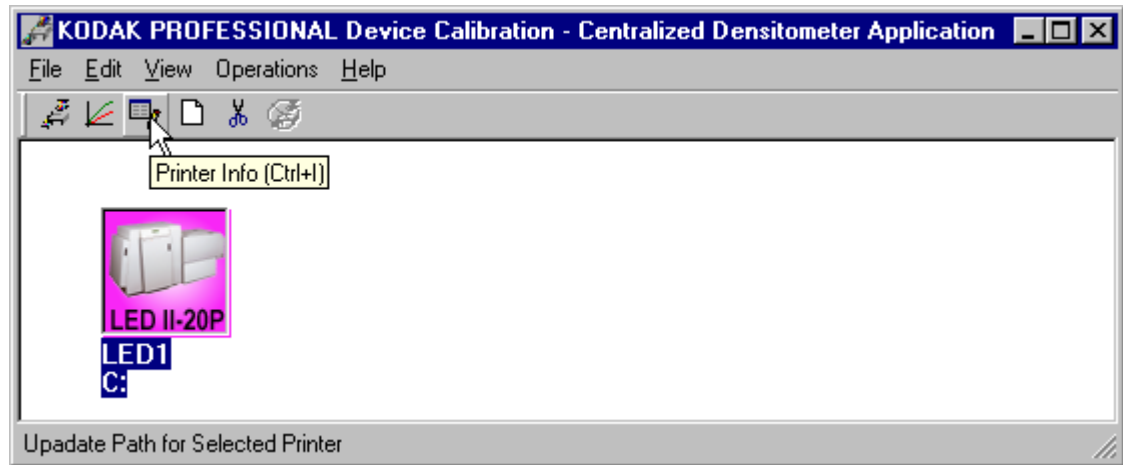


3. Click **Yes** to delete the printer.

The selected printer is no longer visible in the Centralized Densitometer Application window.



Changing Printer Information



1. Highlight the printer for which you want to change the information (location).
2. Click the **Printer Info** icon or select *Edit->Printer Info* on the Centralized Densitometer Application window.

The display shows the Update Printer Information dialog box.

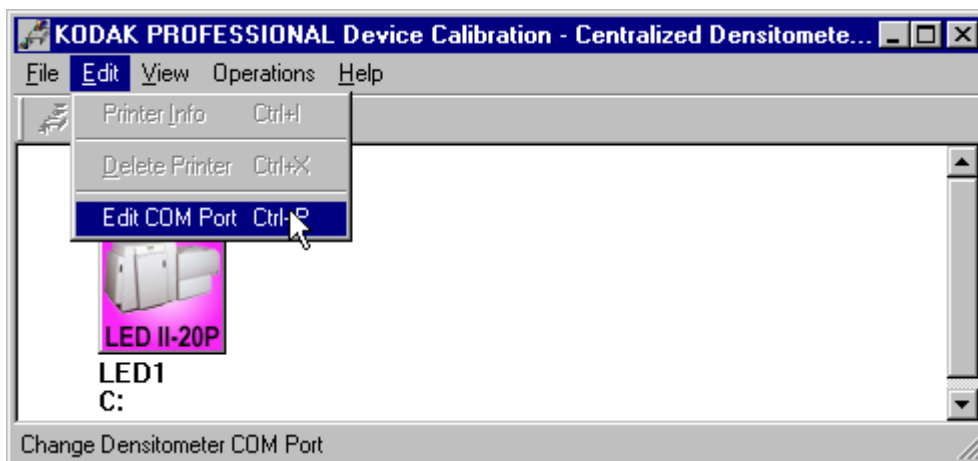


3. Change the location for the printer as needed and click **OK**.

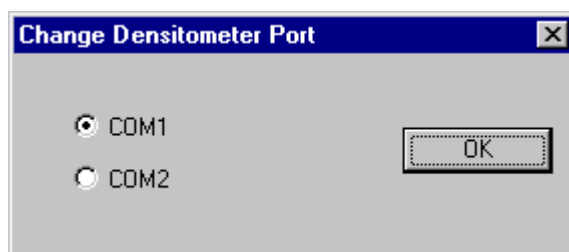
Changing the Densitometer Port

You can change the designation of the port on your host computer to which the densitometer is attached.

1. Select *Edit->Edit COM Port* on the Centralized Densitometer Application window.

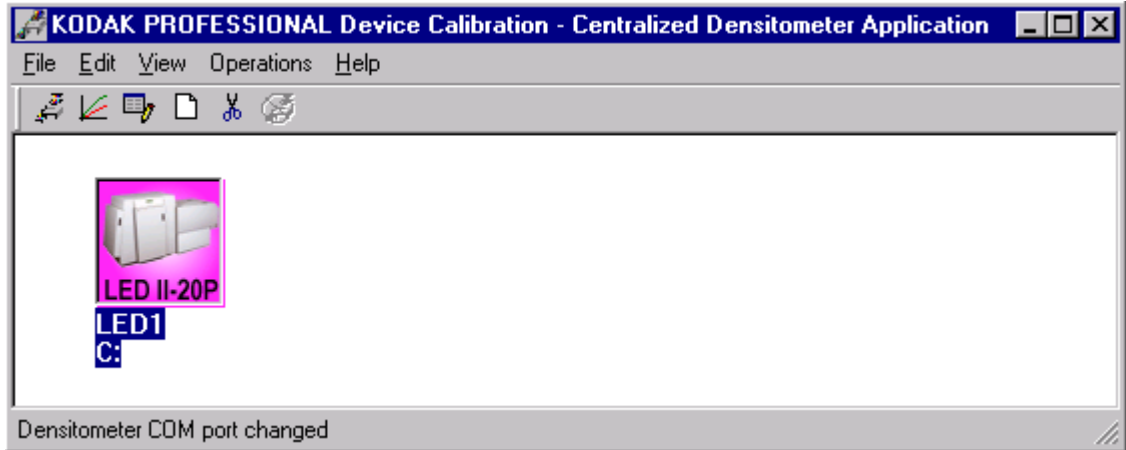


The display shows the Change Densitometer Port dialog box.



2. Click in the circle next to either COM1 or COM2 and click **OK**.

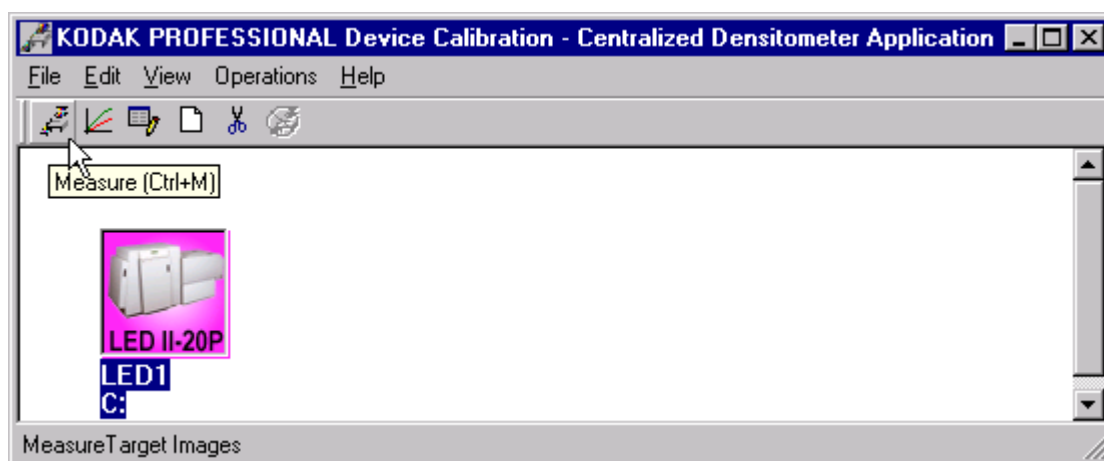
If you change the port, a message is displayed on the status bar of the Centralized Densitometer Application window.



Measuring Densities During a Calibration Cycle

IMPORTANT: To use the centralized densitometer application for measuring densities for a calibration cycle, the density source of “centralized densitometer” must have been selected in the edit configuration dialog for the device being calibrated; see [“Editing Information on the Density Source Tab” on page 3-28](#).

1. Open the Centralized Densitometer Application. The display shows the window for the Centralized Densitometer Application.



2. Highlight the printer.
3. Click the **Measure** icon (or select *Operations->Measure*) to measure the target images.
4. At the densitometer, measure the densities (see [“Using the Densitometer to Read Densities” on page 1-7](#)).

When the densities are measured, the status bar on the Centralized Densitometer Application window displays “Ready.”

The density measurements are automatically sent to the LED printer’s host computer.

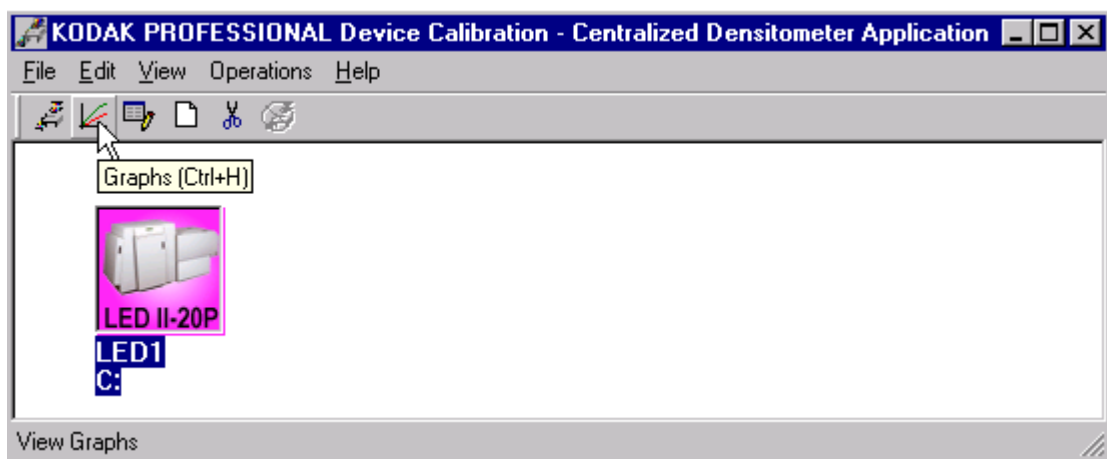
Viewing Calibration Graphs

The View Graphs feature provides access to the available graphs from the most recently completed calibration for the selected printer.

For examples of the graphs, see [“Viewing Graphs” beginning on page 3-13](#). The Value and Difference Graphs reflect the densitometer values that were last read. The History Graph displays the data from completed calibrations.

To view calibration graphs from the Centralized Densitometer application:

1. Highlight the printer you want to view graphs and click the **Graphs** icon or select *View->Graphs*.



The display shows one of the graphs; typically it is the Value graph.

2. Select the Graph Type that you want to view. When the display shows the graph, select the type of data and planes that you want to see.

NOTE: You will get a message if there is no calibration data for the selected printer.

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